B U L L E T I N

Missouri Botanical Garden

JANUARY / FEBRUARY 1995

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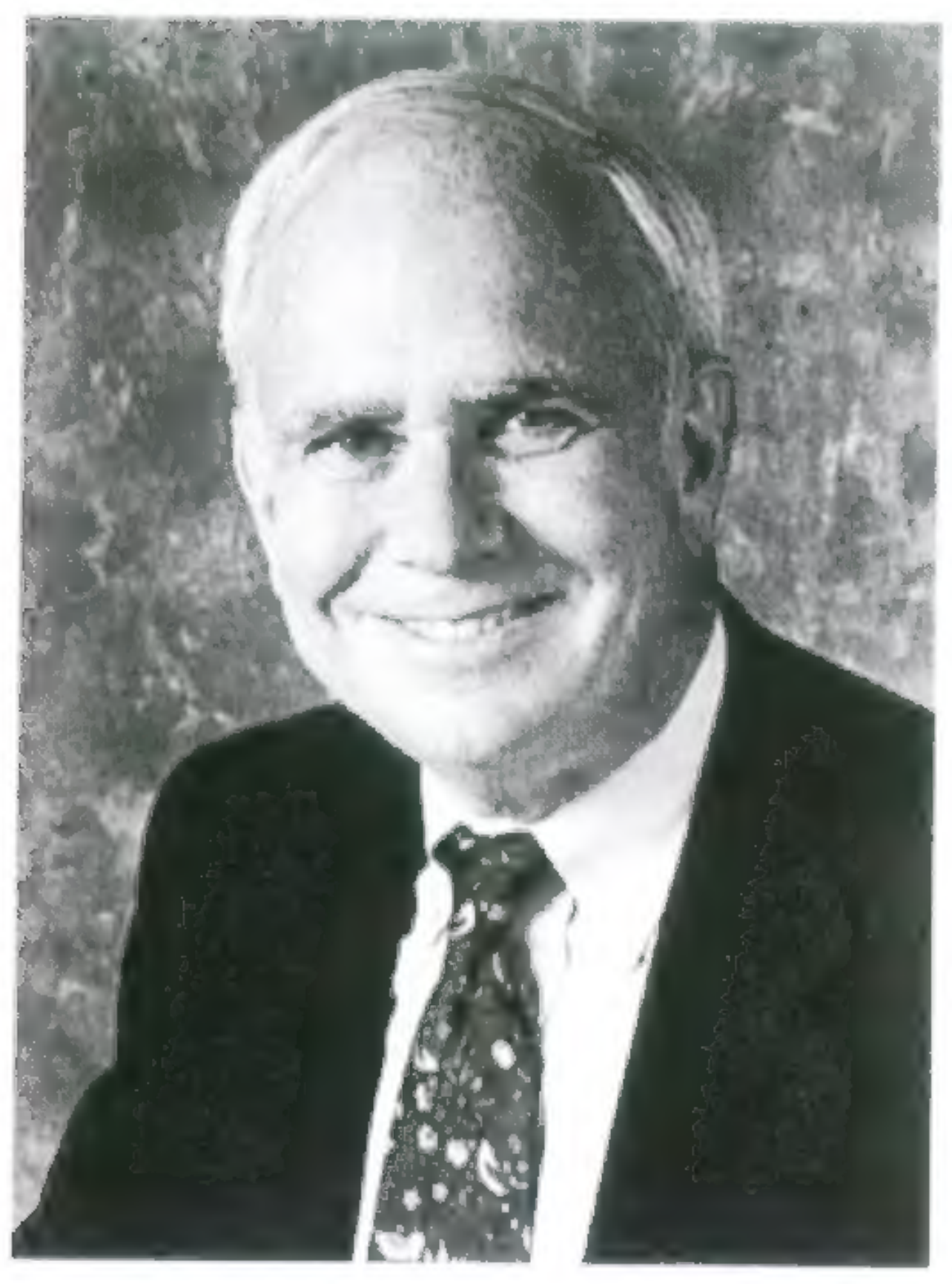
MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS AND THEIR ENVIRONMENT, IN ORDER TO PRESERVE AND ENRICH LIFE."

The exceptionally pleasant weather we enjoyed in St. Louis during the late autumn allowed us to continue to push ahead with construction of the new demonstration gardens at the William T. Kemper Center for Home Gardening and to begin demolition on the site of our new Research Center. Take a look at the next page and see page 13 for an update on our progress with these exciting developments. We also are proud to be part of the cooperative relationship with our sister city, Nanjing, China, which is donating the pavilion for our new Chinese Garden (see next page.)

These projects are supported by the Partnership Campaign, our current capital fund drive. I am proud to announce that as this issue of the *Bulletin* goes to press, the capital fund drive total stands at $20.7 million, 67 percent of our minimum goal. This has been made possible by the extraordinary generosity of our members and the St. Louis community, and I thank each of you for your participation.



Outstanding recent gifts to the Partnership Campaign and the Garden include a grant of $200,000 from the Missouri Department of Conservation to support use of native plants in our demonstration gardens and $800,000 from the Andrew W. Mellon Foundation to support our botanical research program. In addition, Mr. and Mrs. Vernon Piper have given the new Observatory that will overlook the Maze. It is impossible to thank these donors adequately for their generosity and support, or for the pleasure their gifts will bring to all Garden visitors. Please read more about these projects on pages 4 through 7.

The International Center for Tropical Ecology at the University of Missouri–St. Louis (see page 8) is a major achievement in the education of new scientists, an endeavor that we are proud to be part of. Other Garden education efforts are described on pages 18 and 19. These stories may give some sense of the depth and breadth of our commitment to improving the quality of science education in the metropolitan St. Louis area.

Now that the holidays are over, please come to the Garden often for a glimpse of all the exciting activities we have planned for these winter months.

— Peter H. Raven, Director

Ewans Receive Henry Shaw Medal

CLIFF WILLIS

Professor Joseph Ewan and his wife Nesta received the Garden's highest honor, the Henry Shaw Medal, at a dinner for major Garden donors at the Ritz-Carlton on October 26, 1994. Joseph and Nesta Ewan are preeminent 20th century interpreters of American natural history who have spent a lifetime as educators, writers, and historians. Shown with Prof. and Mrs. Ewan at the dinner are Peter Raven and John K. Wallace, Jr., president of the Board of Trustees.

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On the Cover

Yatsuhashi Bridge in the Japanese Garden

Photo by King Schoenfeld

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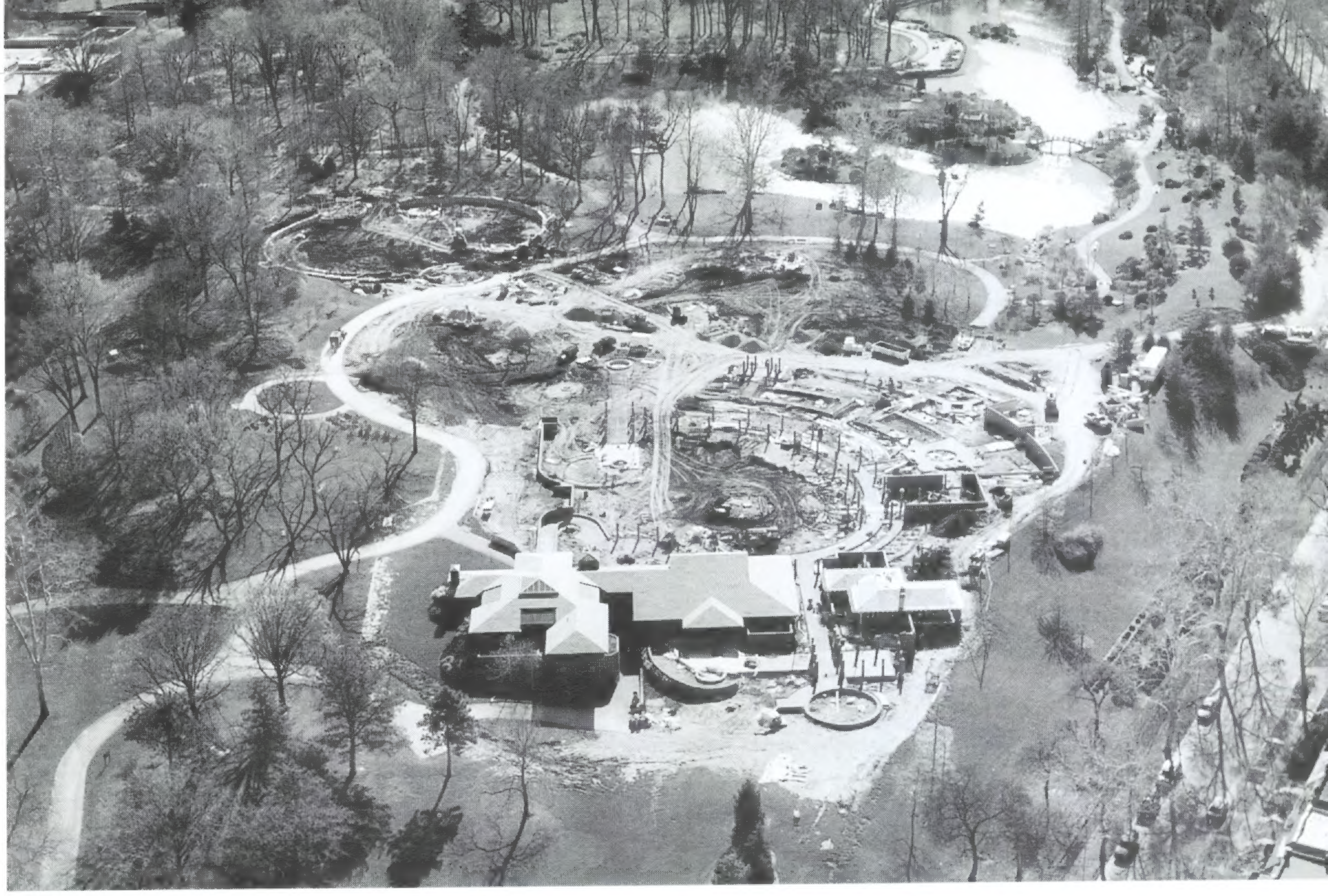
A Bird's Eye View

An aerial photograph taken in early December shows the construction of the new demonstration gardens well underway. In this view looking south, the William T. Kemper Center for Home Gardening is at the bottom of the picture and the lake in the Japanese Garden is at the top; the large oval area in the upper left is the foundation for the new Boxwood Garden. The site where the new Chinese Garden will be constructed this spring is at the left of the photograph.



SRENCO PHOTOGRAPHY

SISTER CITY ANNIVERSARY TOUR TO CHINA

MISSOURI BOTANICAL
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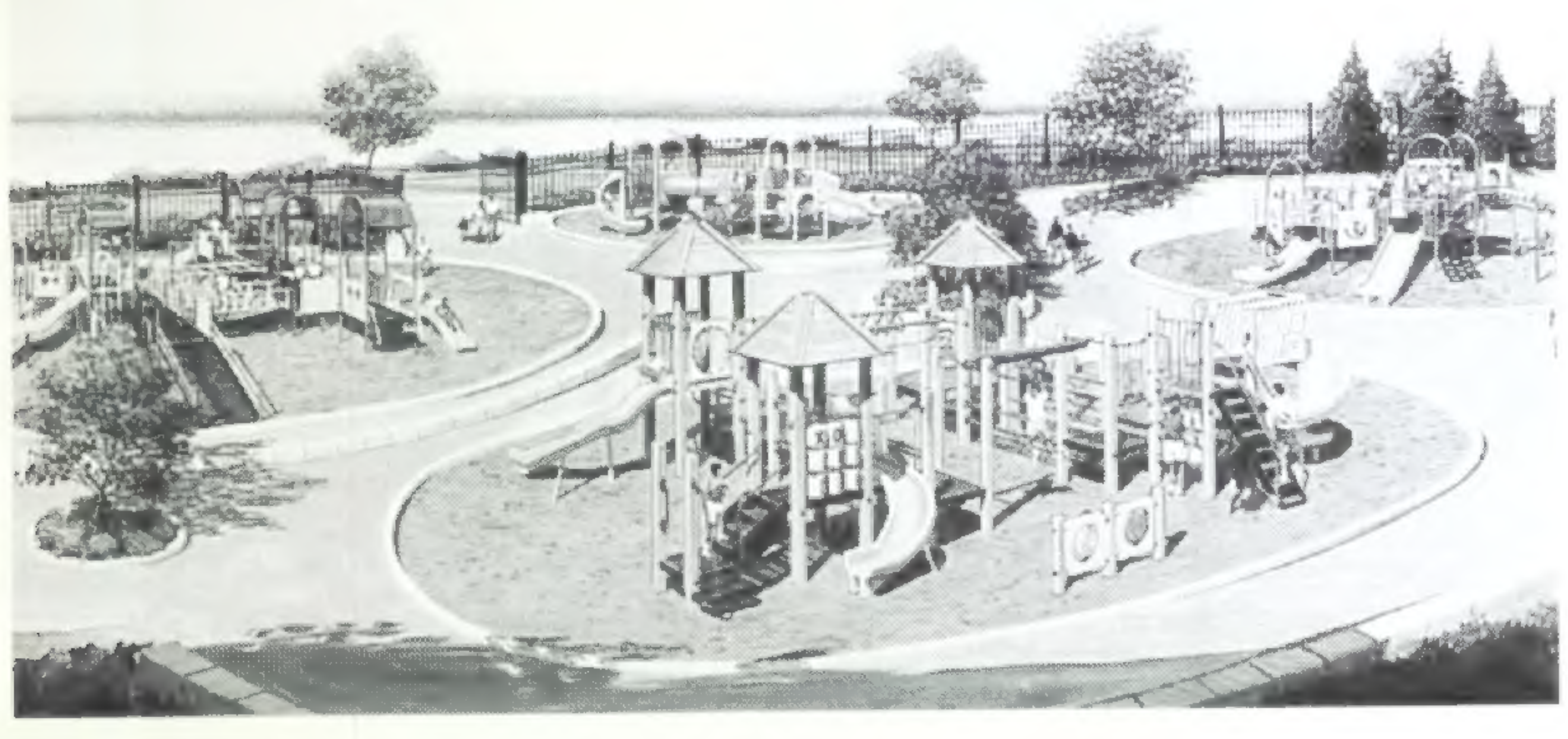
Garden & St. Louis Dedicate a Gift to Nanjing

IN OCTOBER, 1994, Mayor Freeman Bosley, Jr. of St. Louis, representatives of the Garden, and Mayor Wang Wulong of Nanjing, China, celebrated the fifteenth anniversary of the sister city relationship between their cities by dedicating the site for a new playground, a gift to the people of Nanjing from the city of St. Louis. In return, Nanjing is providing a traditional stone pavilion and marble bridge to embellish the new Chinese Garden under construction at the Missouri Botanical Garden.

The playground dedication was a highlight of a ten-day Anniversary Tour to China organized by the Nanjing-St. Louis Sister City Committee. The playground (pictured below) was designed by Robert E. Goetz & Associates of St. Louis and will be built in Nanjing later this year. The Chinese Garden at the Missouri Botanical Garden will honor the Garden's twenty-year relationship with botanical institutions in China as well as the St. Louis–Nanjing sister city relationship. Watch for exciting news of the Chinese Garden in the next issue of the *Bulletin*.

A Far East Trade Mission and Economic Delegation organized by the World Trade Center in St. Louis joined the Anniversary Tour in Nanjing. The group visited Hong Kong, Beijing, and Taipei, as well as Nanjing. Mayor Bosley, who serves on the Garden's Board of Trustees as an *ex officio* member, said, "We set out to improve relations with our sister city and open the doors for trade and economic development. We returned not only with renewed fellowship with our counterparts in Nanjing, but also carrying signed agreements and commitments for business development and partnerships."



Left: The architect's rendering of the new playground that was dedicated last fall in a park in Nanjing, China.

Above: Three classes of school children welcomed the delegation from St. Louis. Shown standing behind a group of children at the ceremony are (from left): Marcia Kerz, MBG director of development; Mayor Bosley; Mayor Wang Wulong; Missouri State Senator J. B. Banks and Mrs. Banks.

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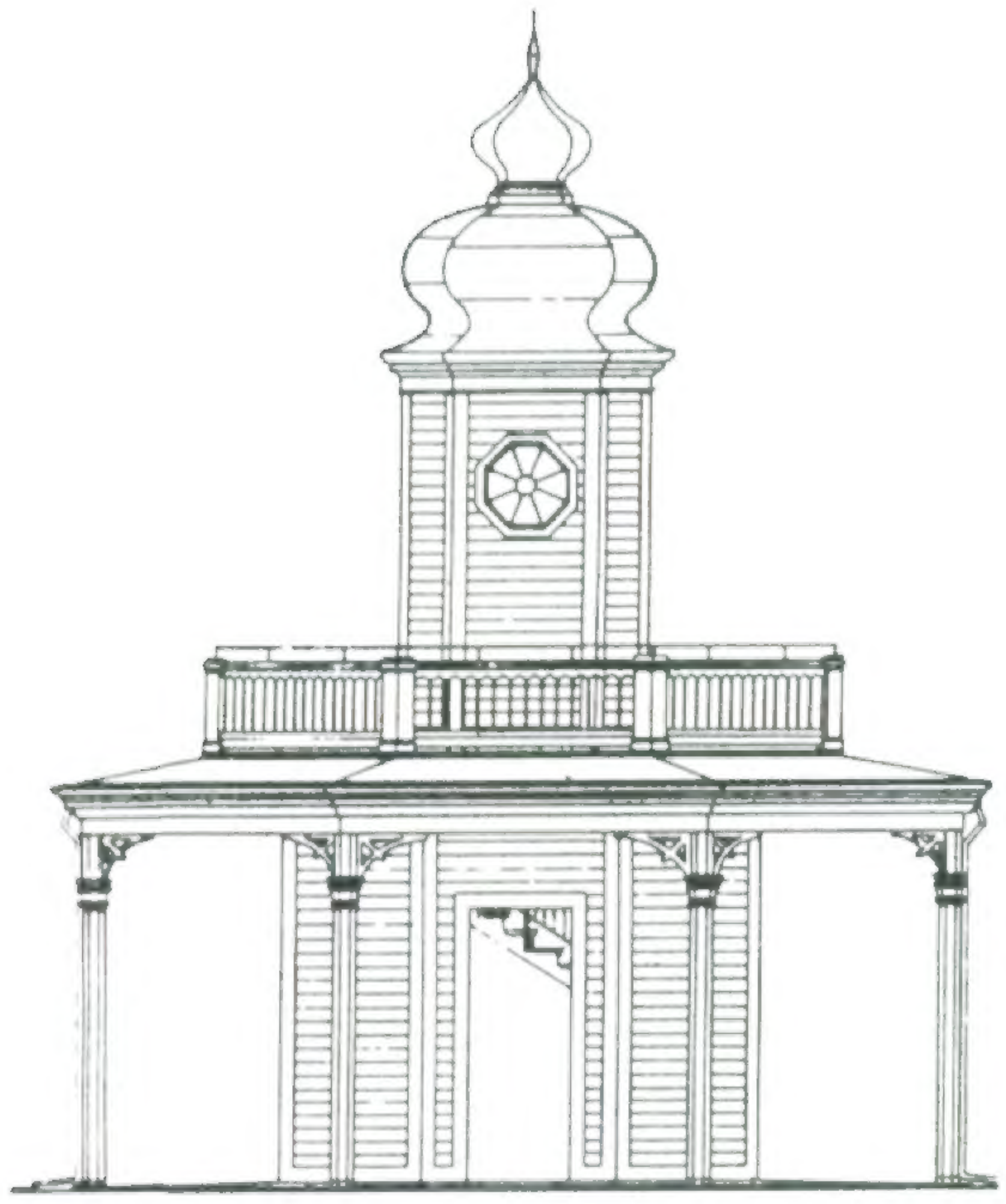
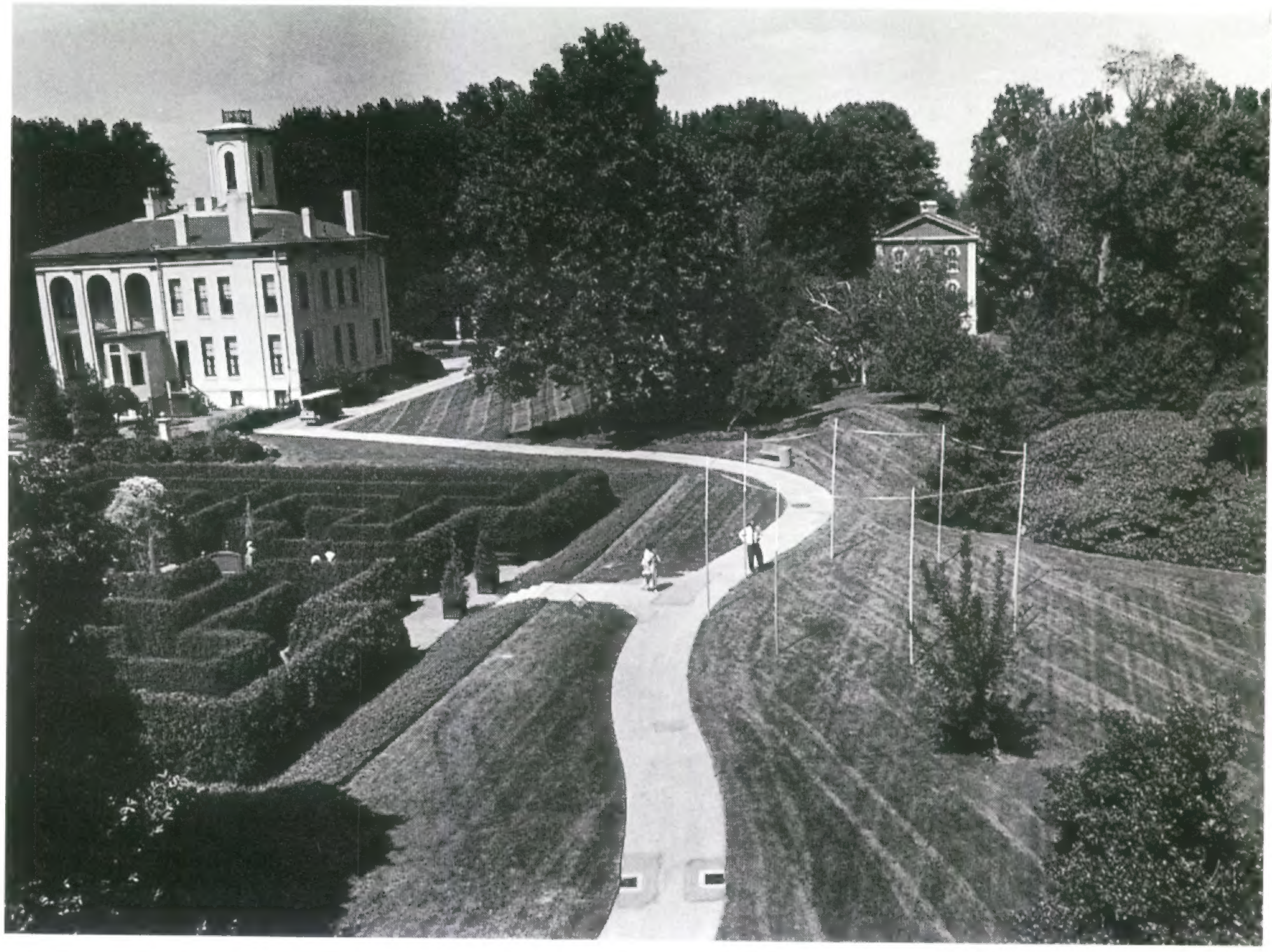
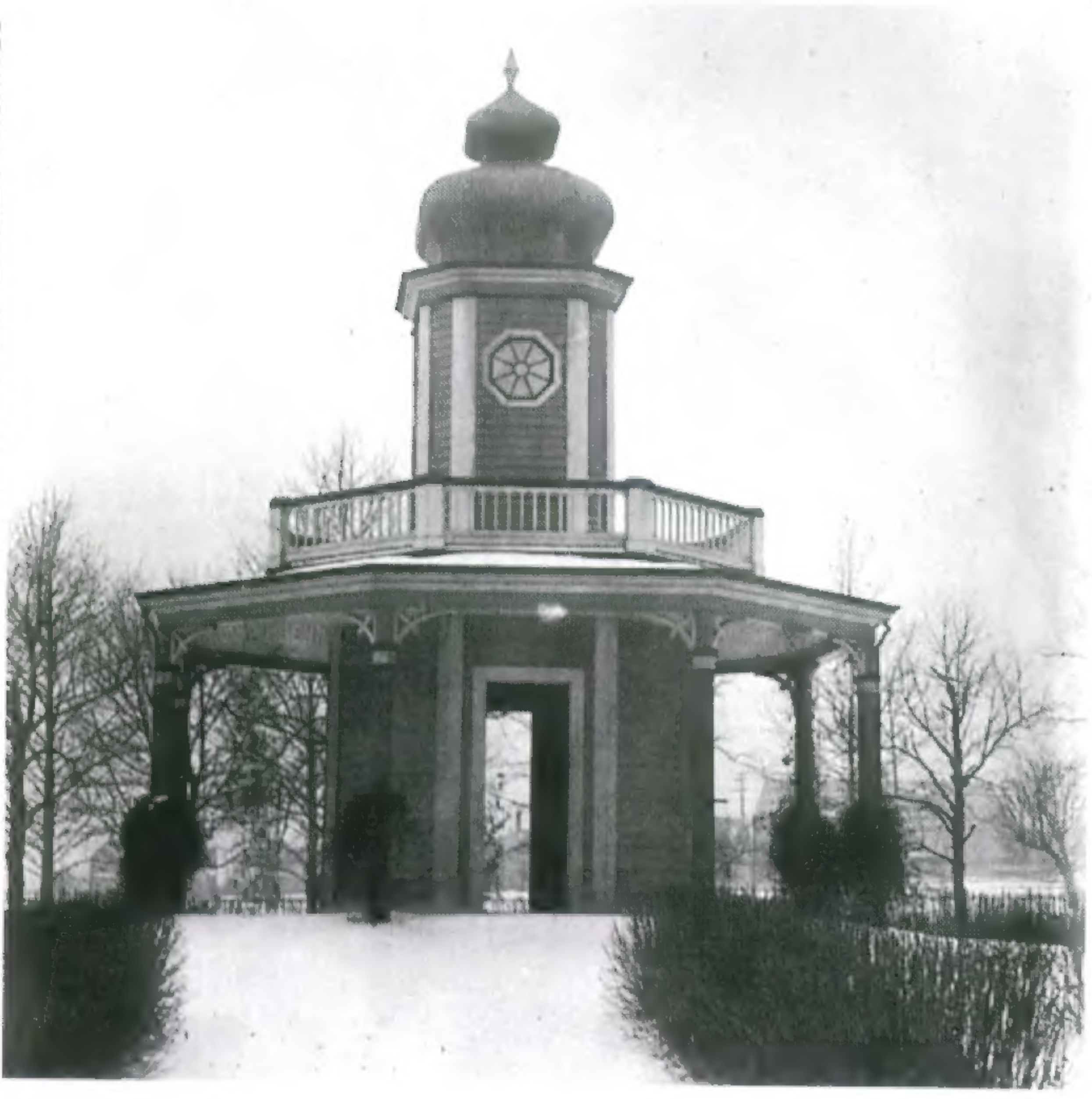


▲ *Architect Philip Cotton's design for the new Observatory was based on the 19th century wooden structure shown below.*



CLIFF WILLIS



MISSOURI BOTANICAL GARDEN ARCHIVES

▲ *This observatory, which stood in a St. Louis park at the turn of the century, had a steep stair or ladder that led to the circular viewing gallery. The double onion dome was a popular decorative motif derived from Russia and Central Europe.*

Above, right: A view of the site where the new Piper Observatory will be built this summer at the Garden. Stakes indicate the dimensions and location for the new pavilion. Paths will be rerouted to provide access to the Observatory from three sides. The grounds around the Observatory and the Maze will be landscaped as an authentic Victorian garden.

THE PIPER OBSERVATORY

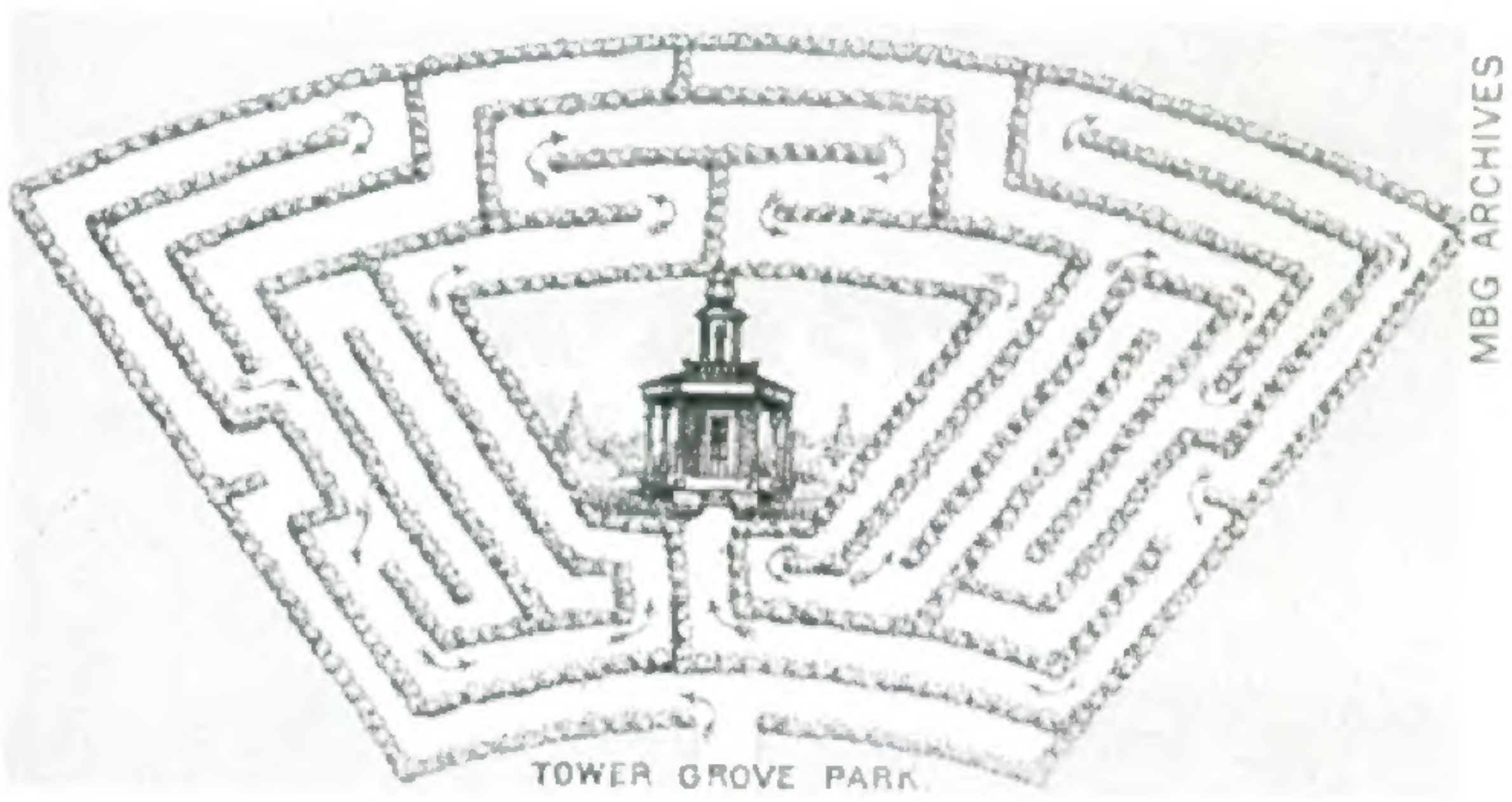
A Dream Come True

When Henry Shaw opened his garden to the public in 1859, he discovered one drawback: visitors constantly asked permission to enter Tower Grove House and climb the tower, in order to enjoy the view of the gardens below. Perhaps Mr. Shaw's sense of hospitality was strained, but he solved the problem by building an observatory pavilion in the center of the Knolls in 1863. Mr. Shaw must have been pleased with the results; in 1877 he constructed a tower in the center of the maze in Tower Grove Park to allow visitors to enjoy the antics of their friends trying to navigate the paths below.

This year the Garden will realize a long-cherished dream of uniting these historical features by building a Victorian observatory and garden overlooking the Jennie Latzer Kaeser Memorial Maze. These lovely new features are made possible by a gift from Mr. and Mrs. Vernon Piper, in memory of Mr. Piper's parents, Frank H. Piper and Julia Mohlman Piper. The Maze was a gift from the Pipers in 1986 in memory of Mrs. Piper's mother. The Victorian garden, which is

MISSOURI BOTANICAL GARDEN ARCHIVES

A 1905 winter view of the observatory shown in closeup at left.



MBG ARCHIVES

A contemporary postcard shows a map of the Tower Grove Park maze, or "labyrinth," with an observatory at the center.

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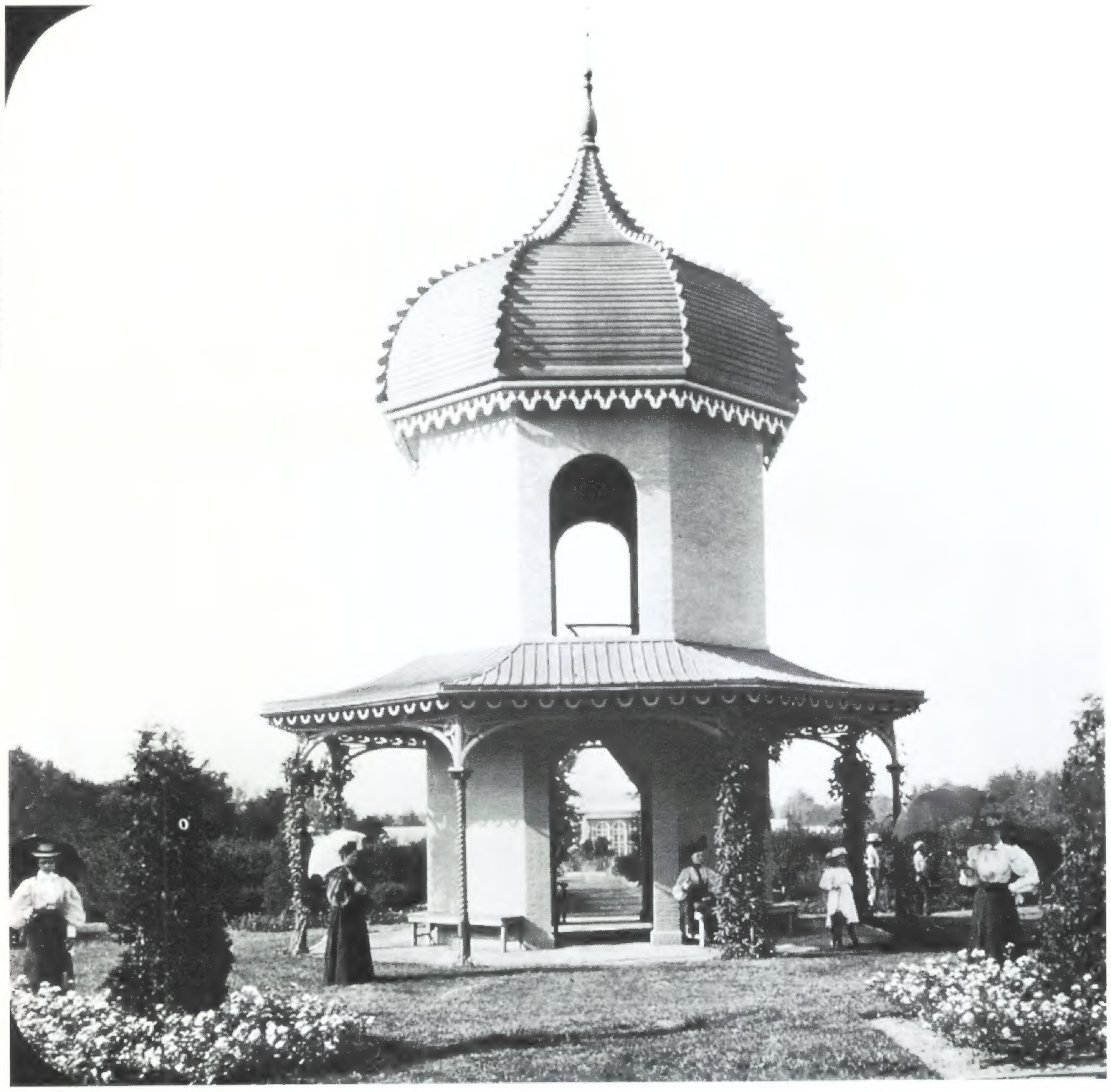
being designed by Environmental Planning and Design of Pittsburgh, the Observatory and the Maze will transform this corner of the Garden into a splendid historical area, an authentic tribute to the Garden's Victorian heritage.

The Maze has long been a favorite attraction for visitors, especially children. The Observatory, recreated by architect Philip Cotton, will enhance the experience of visiting the Maze for everyone. The tower's design was inspired by a photograph from the Garden's archives of the 1877 observatory in Tower Grove Park. The octagonal wooden structure will be open to the weather, with a staircase circling the interior leading to the upper viewing gallery. The gallery faces west, overlooking the Maze, and the tower is crowned with a beautiful "double onion" dome sheathed in patinated copper. A decorative black metal floor in the tower will allow light into the center of the Observatory and will be ornamented with the initial "P" in honor of the Pipers. Hidden cameras will provide good views from the tower to a video screen on the main floor, accessible to people who cannot climb stairs.

One of the challenges of the Observatory project has been locating used lumber, old-growth wood that is far more durable than today's lumber, Cotton says. "For instance, we need columns that are about nine inches in diameter and 13 feet high; you just don't find wood like that that will last today. We are searching for a source for the columns," he added.

To the Victorians, mazes and towers embodied Romantic ideals of fanciful escape to far-off places and times, as well as a sense of play. The Garden's new Observatory and the Maze echo these feelings for us today. Mrs. Piper, a member of the Garden's Board of Trustees, recalled that her mother used to visit the Garden, a tradition that she continued with her own children. Mrs. Piper's daughter Jane is active on the Tower Grove House Historical Committee and is second vice president of the Campbell House Museum; her son serves as president of the board of the Eugene Field House in St. Louis.

Groundbreaking for the new Piper Observatory will take place this spring. "All Garden members and visitors can look forward to enjoying this wonderful new feature," said Peter Raven. "We are so pleased and grateful that Mr. and Mrs. Piper have made this dream come true for all of us."



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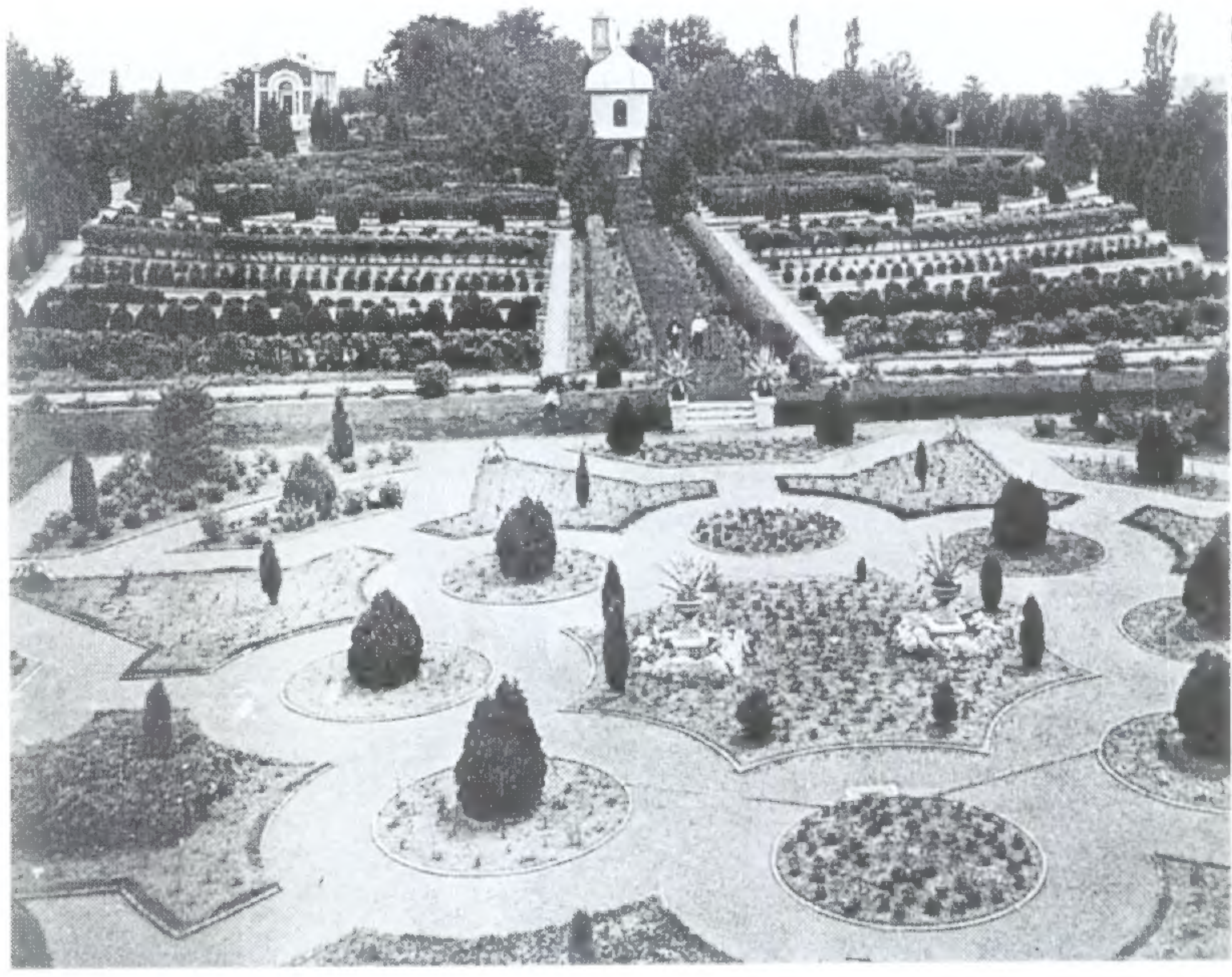


MISSOURI BOTANICAL GARDEN ARCHIVES

CLIFF WILLIS

▲ ***Built in 1863 from a design by George I. Barnett, architect of Tower Grove House, the "Pavilion" stood in the center of what is now the Knolls, oriented on the north-south axis between the Linnean House and Tower Grove House. Built of brick, it was painted white and ornamented with wrought iron columns and wooden gingerbread trim. A steep circular stair to the upper windows is visible through the doorway.***

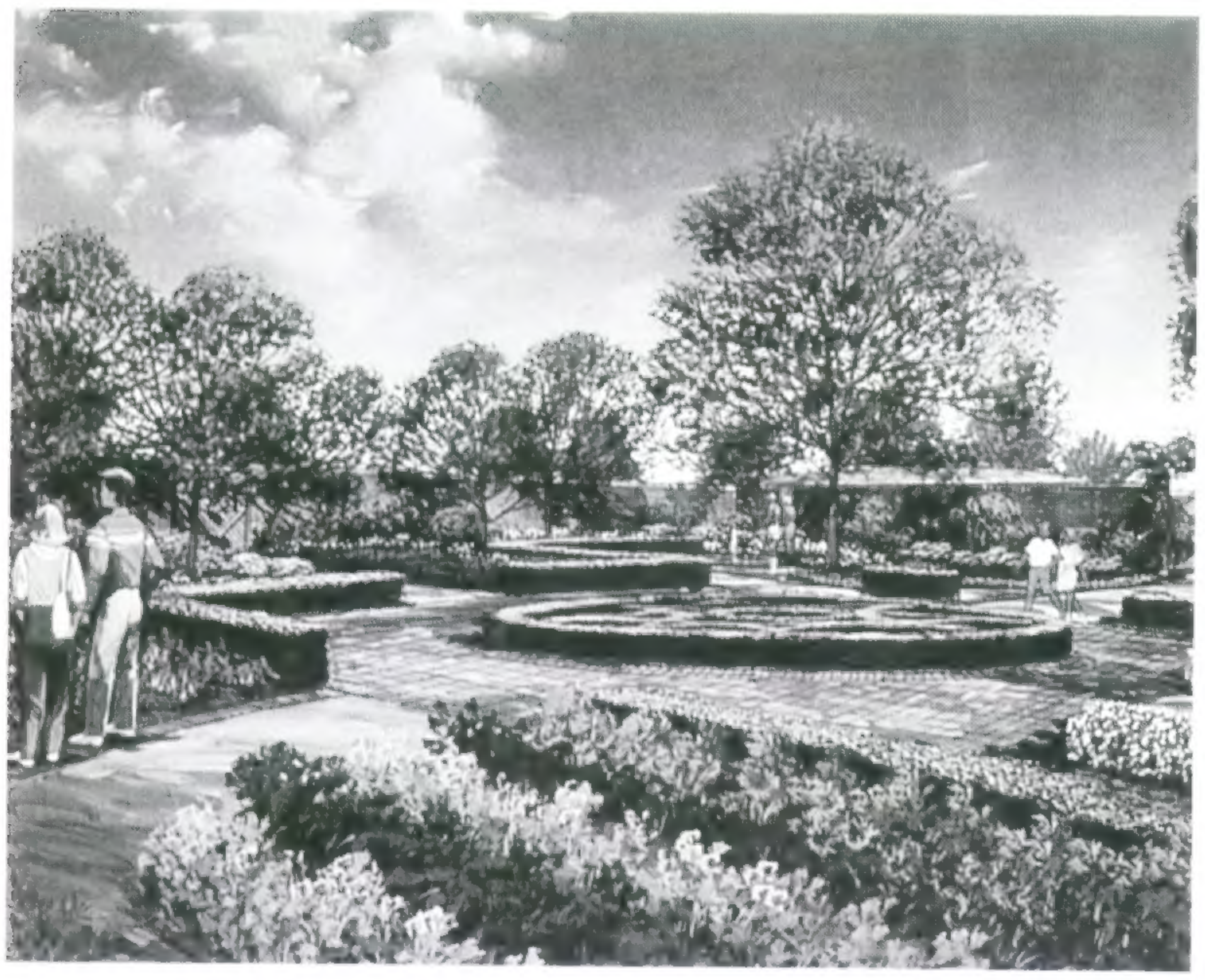
Above, right: A 19th century view of the Pavilion looking south, with Tower Grove House in the background and the Museum Building visible to the left.

Below, right: Mr. and Mrs. Vernon Piper visited the site of the new Observatory last fall with architect Philip Cotton (right).

The Family Vegetable Garden

Boatmen's Bancshares, Inc. has made a generous commitment to support the Family Vegetable Garden, one of the 24 demonstration gardens in the William T. Kemper Center for Home Gardening currently under construction as part of the Partnership Campaign.

Boatmen's record of community involvement began in 1847 when the bank opened for rivermen on steamboats plying the Mississippi. In 1871 Rufus J. Lackland became Boatmen's president. Under Lackland's direction, Boatmen's became one of the most notable institutions of its kind in the West. Boatmen's commitment to the people of St. Louis remains evident today in their enduring magnanimity.



The Garden's relationship with Boatmen's dates almost from the bank's origin. Henry Shaw had an account there, and Shaw's townhouse was at Seventh and Locust — only a few blocks from Boatmen's first location in a small house at No. 16 Locust. Shaw named Lackland as one of the original Trustees of the Garden, and after Shaw's death in August, 1889, Lackland was unanimously elected the first president of the Garden's Board of Trustees. During his tenure Lackland relocated Shaw's townhouse to its present site, added the south wing, and established research fellowships. Since that time Boatmen's has continued to be an active participant in the Garden's development.

The Family Vegetable Garden is the latest installment in Boatmen's benevolent tradition. The garden will display the finest fruit and vegetable varieties available for growing in the St. Louis area. Visitors will have access to a wide range of information and helpful hints on starting and maintaining a residentially-scaled plot.

Features will include a culinary herb display; a salad plot with lettuce, greens, and edible flowers such as nasturtiums and pansies; an orchard of dwarf apples and peaches; plots of new vegetable varieties; flower borders for cuttings; an ethnic garden display; a cordon fence for raspberries and blackberries; and a post-and-rail fence for displaying climbing vegetables.

The Vegetable Garden also will contain a brick-edged seating area where visitors can enjoy a small pool displaying tropical waterlilies, irises, lotus, and other beautiful aquatic plants.

Dr. Raven said, "Our visitors will enjoy this garden that offers the best information available on home vegetable gardening. We genuinely appreciate the continued commitment from Boatmen's leadership, especially that of Andrew Craig and Sam Hayes."

Samuel B. Hayes, president of Boatmen's Bancshares and a member of the Garden's Board of Trustees, added, "We are pleased to help bring the Family Vegetable Garden to St. Louis. It's an exciting project for the Garden and for the St. Louis area, and we know the Vegetable Garden will be enjoyed by many generations of gardeners."

Conservation Department Funds Native Plant Displays

Missouri Department of Conservation has awarded a grant of $250,000 to the Garden, primarily to support the use of native plants in the demonstration gardens currently under construction at the William T. Kemper Center for Home Gardening. $50,000 is earmarked for the development and maintenance of a garden at the EarthWays Home in St. Louis (see the *Bulletin*, November/December 1994, page 8.)

The Department of Conservation will be working closely with Garden staff to educate visitors about the importance of native plant species, conservation of natural resources, and how they relate to the urban resident. In addition to being attractive, native species provide habitat for wildlife, are well adapted to the climate, and are resistant to diseases and pests.

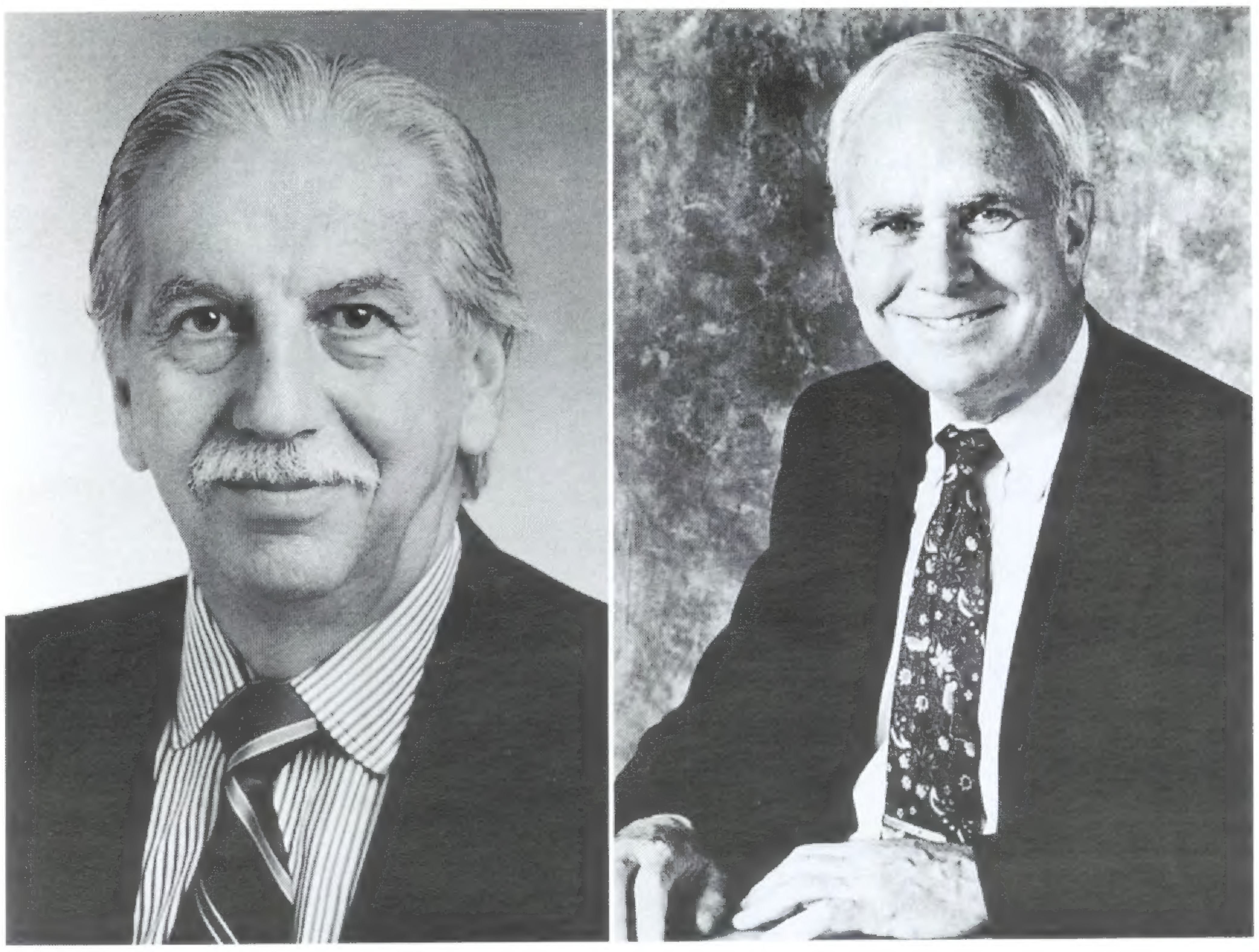
The goals of the Garden and the Department of Conservation converge in many ways. With their responsibility for the fisheries, forestry, and wildlife resources of Missouri, the Department of Conservation is concerned with educating the public about the history, management, protection, and uses of native plants. The Garden will install exhibits that interpret these values. Dr. Raven, who enthusiastically supports this joint effort, noted that, "It is impossible to overstate the importance of conserving our natural resources, and we are thrilled that the Department of Conservation will be collaborating with us in this effort at the Garden."

Five of the new Kemper Center demonstration gardens will contain native Missouri species. The Prairie Garden will be a working laboratory on establishing and maintaining a prairie in an urban setting. In the Native Shade Garden, white oaks and sugar maples will form a canopy over native woodland wildflowers such as bloodroot and Dutchman's breeches. In the Butterfly Meadow and the Bird Garden visitors will learn what features and plantings will entice birds and insects to visit their own gardens. The Limestone Glade represents a unique Missouri landscape that makes limestone outcroppings with dry shallow soils come alive with colorful wildflowers and grasses.

These displays will help visitors integrate native species into their own gardens, including how to obtain plants without endangering wild populations. A special panel exhibit will describe the Missouri Department of Conservation and its activities.

Top Prize for Environmental Achievement

Raven Is Named Co-Winner of 1994 Tyler Prize



Tyler laureates Arturo Gomez-Pompa (left) and Peter H. Raven were honored for their efforts to understand and protect tropical rain forests.

THE NATION'S TOP ENVIRONMENTAL HONOR, the Tyler Prize for Environmental Achievement, has been awarded to Peter H. Raven, Ph.D., and Arturo Gomez-Pompa, Ph.D. The two North American botanists were honored at a formal reception and dinner in Los Angeles in December for their efforts to understand and protect tropical rain forests.

"No two individuals have done more in helping us to understand the complexity and interdependence of the tropical forest ecological systems, and no two individuals have done more to protect them," said Robert P. Sullivan, Ph.D., chair of the 11-member Tyler Prize Executive Committee, which annually selects the winners. "These two scientists are in large measure responsible for the world's growing awareness that tropical rain forests are irreplaceable reservoirs of biological diversity."

"These two scientists are responsible for the growing awareness that tropical rain forests are irreplaceable reservoirs of biological diversity."

Dr. Raven, director of the Garden, is a leading specialist in the study of plant evolution. Raven is the co-developer, with Paul Ehrlich, of the theory of coevolution and was an early exponent of the concept of biodiversity. Tyler laureate Thomas Eisner calls Raven "the world's greatest living botanist" for the body of detailed observation and powerful theory he has contributed to the discipline. At the Garden, Raven supervises the world's leading research program in tropical botany, working to discover and share information about plants in Africa, Madagascar, South and Central America, China, and North America.

Dr. Gomez-Pompa, an internationally respected botanist and ecologist, is recognized as one of the first voices to draw attention to the problem of rain forest destruction, both in his native Mexico and in the world as a whole. He has pioneered studies of rain forest regeneration and of the agricultural methods of native cultures and has devised ways to enlist their peoples in the cause of forest preservation.

As Mexico's most prominent voice for conservation, Gomez-Pompa has been effective both as an informed critic of government policies and as an adviser working within government to preserve Mexico's biological heritage. He has created new initiatives and institutions for science, conservation, and education that serve as models for nations with limited governmental resources for environmental protection and large populations of low-income people living in endangered tropical regions.

The Tyler Prize was established in 1973 by John Tyler, founder and longtime chief executive officer of the Farmers Insurance Group, and his wife Alice. The first Tyler Prizes were awarded in 1974 to Arie Jan Haagen-Smit, who first described the mechanism of photochemical smog; ecologist G. Evelyn Hutchinson; and Maurice Strong, founding director of the United Nations Environmental Programme. The Tyler Prize is administered through an endowment at the University of Southern California in Los Angeles.

Mellon Foundation Supports the Garden's Research Program

THE GARDEN has been awarded a three-year, $800,000 grant from the Andrew W. Mellon Foundation to support extensive worldwide botanical research. The funds will enable the Garden to continue its program of field studies of plants in the low and middle elevation forests of Peru, complete the database on the plants of Ecuador, and consolidate its databasing capabilities in order to expand the availability of botanical information generated by the Garden's research. In addition, the funds will go toward expanded field activities in Colombia and support for the *Flora of North America* project, a massive bi-national effort to catalog and describe, for the first time, all the plants growing naturally in North America north of Mexico.

The Mellon Foundation has in the past supported the Garden's botanical research and institution-strengthening efforts in northwestern South America as well as its computer database development and refinement.

"We are very grateful for this splendid grant the Mellon Foundation," said Peter H. Raven, director. "The Foundation's ongoing support of our research program helps to ensure that internationally important scientific work will continue."

International Center for Tropical Ecology

IN 1990 an extraordinary synergy of talent and expertise inspired a special program for training biologists, the International Center for Tropical Ecology at the University of Missouri – St. Louis. The ICTE combines the academic excellence of UM–St. Louis with the botanical expertise and worldwide research program of the Missouri Botanical Garden. The facility is dedicated to training M.S. and Ph.D. candidates who one day will help find solutions to the global crisis arising from the destruction of tropical ecosystems. The ICTE is committed to training students from countries in tropical regions who will play leadership roles in future conservation efforts, as well as graduate students from the United States seeking expertise in tropical ecology, systematics, and conservation biology.

> *There are ten applicants for every opening in the Ph.D. program. Today the ICTE is among the top tropical biology programs in the world.*

The collaborative relationship between UM–St. Louis and the Garden has existed for over twenty years. The University has had a Master's program in biology since the late 1960s, and many of its students have benefitted from studying with Garden researchers. In 1990 UM–St. Louis established a doctoral program in biology, and "a group of us recognized that we had an opportunity to create a very special program here," said Dr. Victoria Sork, associate professor at UM–St. Louis and director of the ICTE.

"We had long recognized that one way to help solve global ecological problems was to train more biologists from tropical regions. Many of the educational and scientific institutions in those countries are underfunded and isolated. We wanted to create a network that would help students come to the United States for training, be exposed to a broad range of disciplines and ideas, and establish a network of professional colleagues and connections that would help support them when they return home. The Garden's wide-ranging work in tropical countries, particularly Latin America, was a wonderful boost to attracting these kinds of students," Sork said.

The growth of the program has been phenomenal. In just four years, it has grown from 15 full- and part-time students to 80. A third of the full-time students are Latin American; 40 percent are international. There are ten applicants for every opening in the Ph.D. program. Today the ICTE is among the top tropical biology programs in the world.

Since the ICTE was established in 1990, UM–St. Louis has celebrated World Ecolgy Day by awarding its prestigious World Ecology Medal to individuals who have made a significant contribution to the advancement of ecology and conservation practices relating to the global environment. Past recipients of the Medal are John Denver, Captain Jacques-Yves Cousteau, Prince Sadruddin Aga Khan, and Paul Ehrlich.

One of the greatest strengths of the ICTE is its multidisciplinary approach. Students are trained not only in biology but in the development of national policies for conservation and sustainable use of tropical resources. Courses are enhanced by faculty from UM–St. Louis's departments of Political Science, Anthropology, History, and the Center for International Studies. The Department of Biology has expertise in molecular, cellular, and organismal studies of both tropical and temperate ecosystems.

Students have opportunities to intern with conservation or environmental agencies in the U.S. or a tropical country, where they work with internationally recognized experts in environmental policy and see first hand how public policy decisions are made. Through UM–St. Louis's membership in the Organization for Tropical Studies (OTS), students participate in intensive field research and courses at OTS field stations in Costa Rica. The Garden's research program offers students access to scientific facilities worldwide.

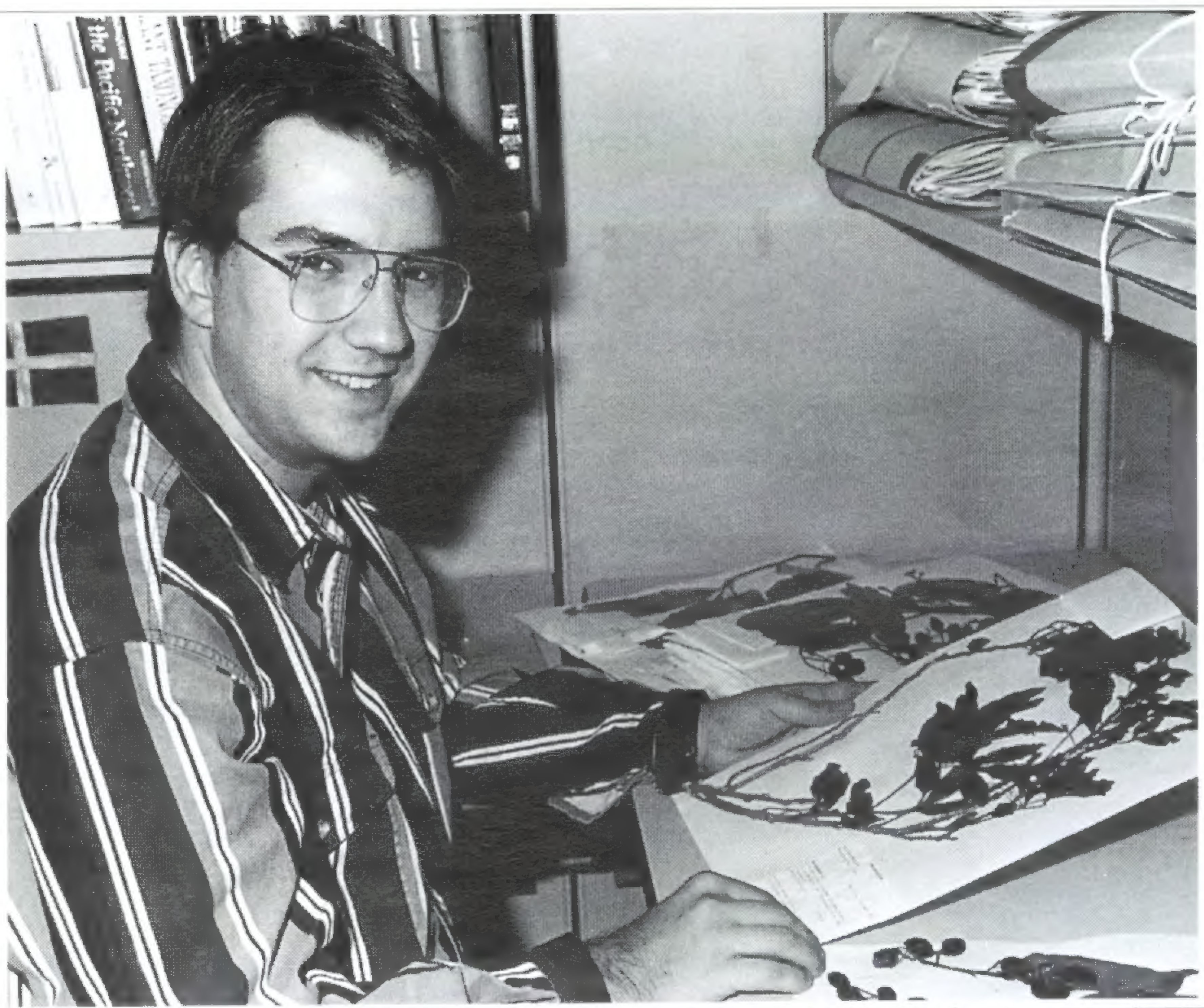
A major role of the ICTE is to provide fellowships for outstanding graduate students. UM–St. Louis funds the Peter Raven Fellowships in Tropical Biology and has received support from the Tinker Foundation, which offers fellowships to talented Latin American graduate students, including the Stephen Doyle Memorial Fellowship. This fall an anonymous donor established the Parker/Gentry Fellowship in memory of ornithologist Ted Parker and Garden curator Alwyn Gentry, who were killed in a plane crash in Ecuador last year. The ICTE itself was established through generous support from the St. Louis community, led by Garden Trustee Robert R. Hermann, Jane and Whitney Harris, and S.E. Freund, all longtime friends of the Garden.

The students who attend the ICTE are remarkably diverse in their academic interests and cultural backgrounds. Carlos Reynel, a Ph.D. candidate from Peru, was a professor of forestry in Lima for seven years; he is a expert in sustainable uses of tropical forests and the author of several books. Guilllermo Paz y Miño was vice minister for the environment in Ecuador; he is studying plant/animal interactions and criteria for selecting national parks.

Chris Flores, an M.S. candidate from New York City, is the first graduate student to study plants in Gabon, West Africa, a tribute to the growth of the Garden's research program in Africa. He is particularly interested in plants that produce poisonous alkaloids, potential sources of medicines.

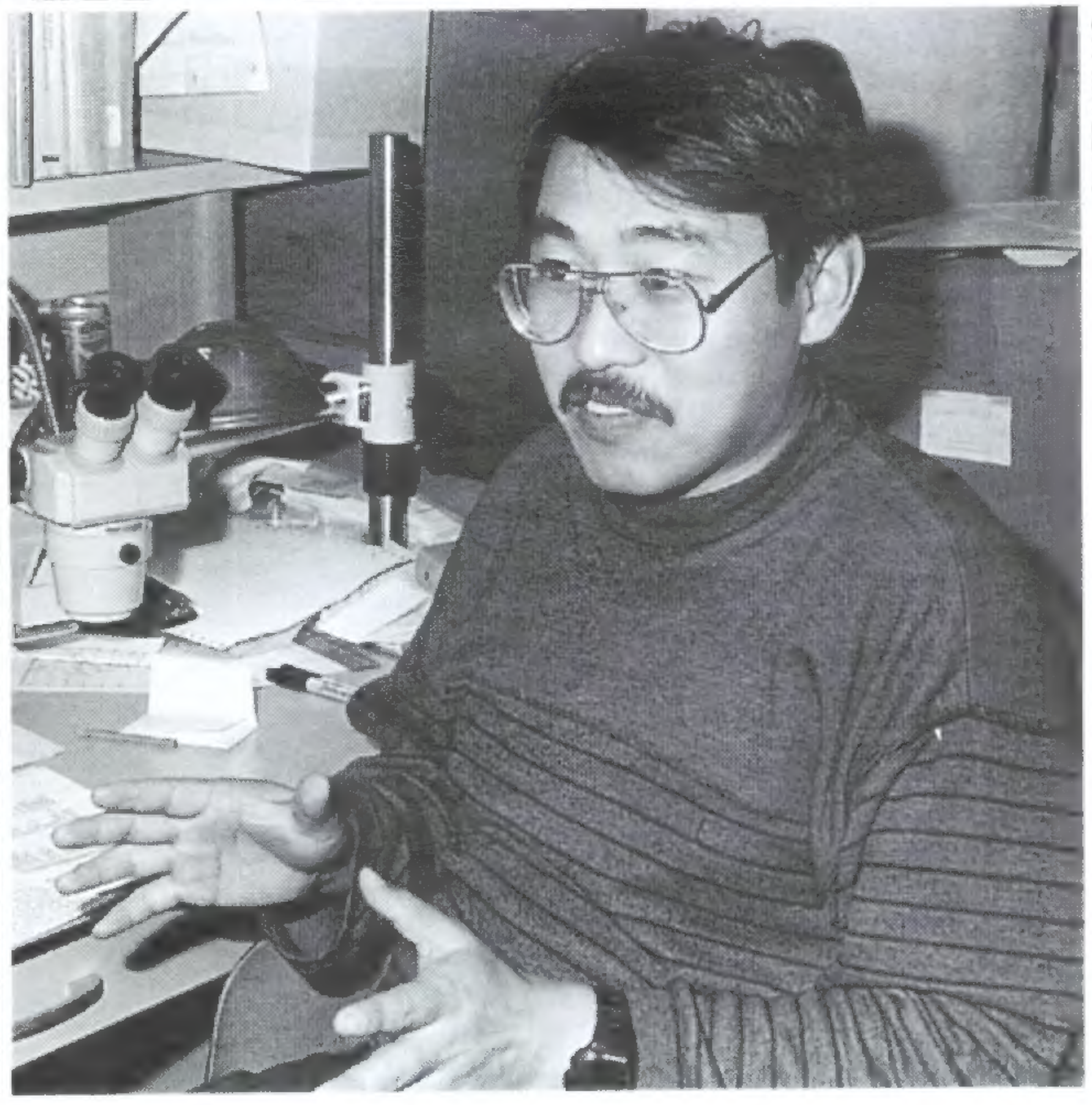
"Being here is a wonderful opportunity," said Sylvain Razafimandimbison of Madagascar. "I am particularly interested in evolution, which is a strong part of this program but is not available at home." Guanghua Zhu, who was one year away from a Ph.D. in China before political upheavals forced him to start over in the U.S., particularly values the diversity of the student body. "I feel at home here," he said. "This program is very rich in opportunities, and I really enjoy working at the Garden."

That enthusiasm is echoed by all of the students in the ICTE program. UM–St. Louis and the Garden are fortunate to work with such a talented group, who will make such a difference to the future of our world. ■



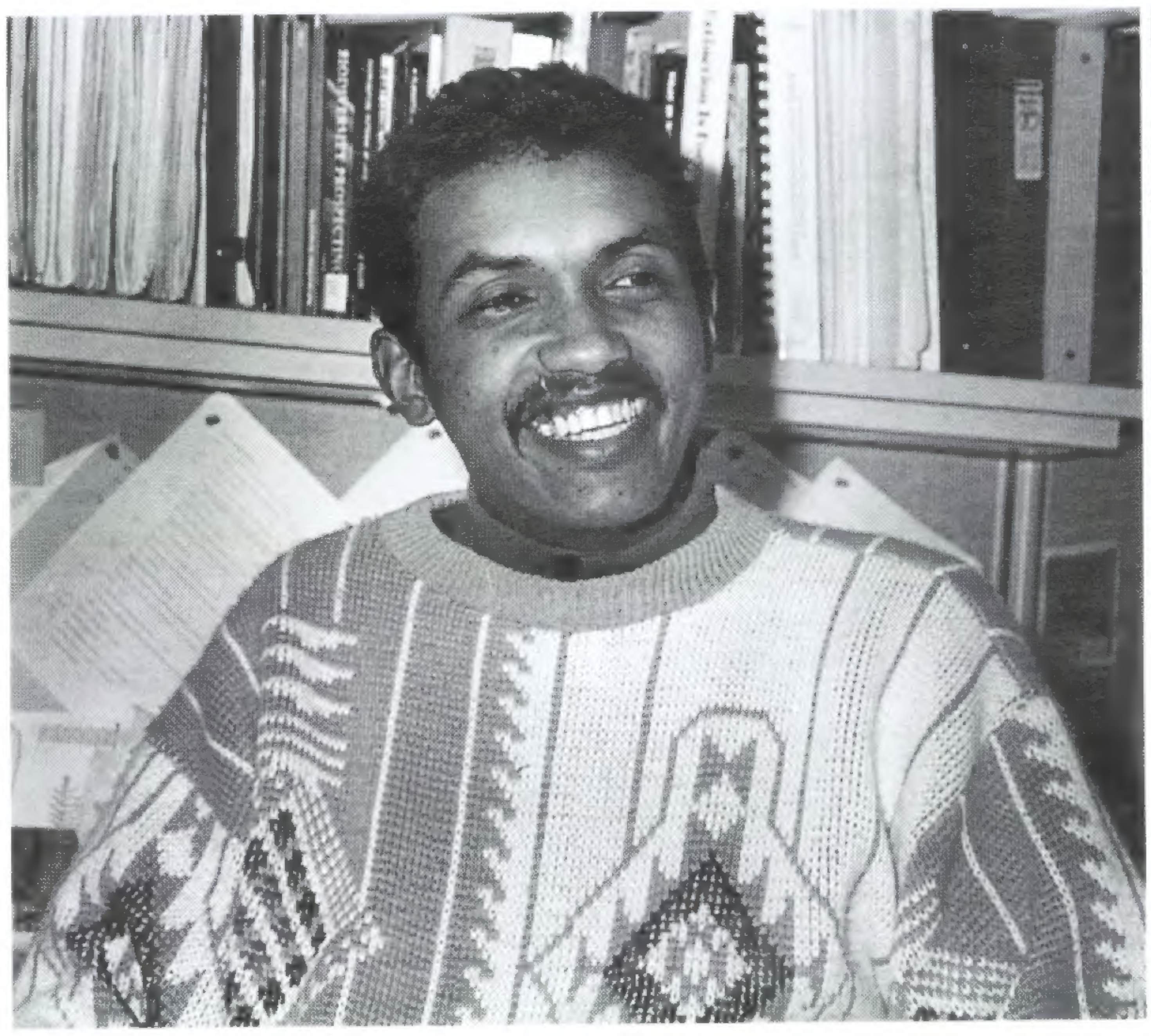
◀ *Andoni Westerhaus of St. Louis is pursuing an M.S. in systematics, specializing in plants of Africa and Madagascar and working with the Garden's curator for Madagascar, George Schatz. Andoni has worked as a volunteer on the* **Flora of Missouri** *and has collaborated on a checklist of Rockwood Reservation.*

▲ *Nidia Cuello of Venezuela is in her first semester, working on an M.S. in engineering of natural resources. She has taught botany and worked in the herbarium at home, where she contributed work on legumes for the* **Flora of Venezuelan Guayana.**

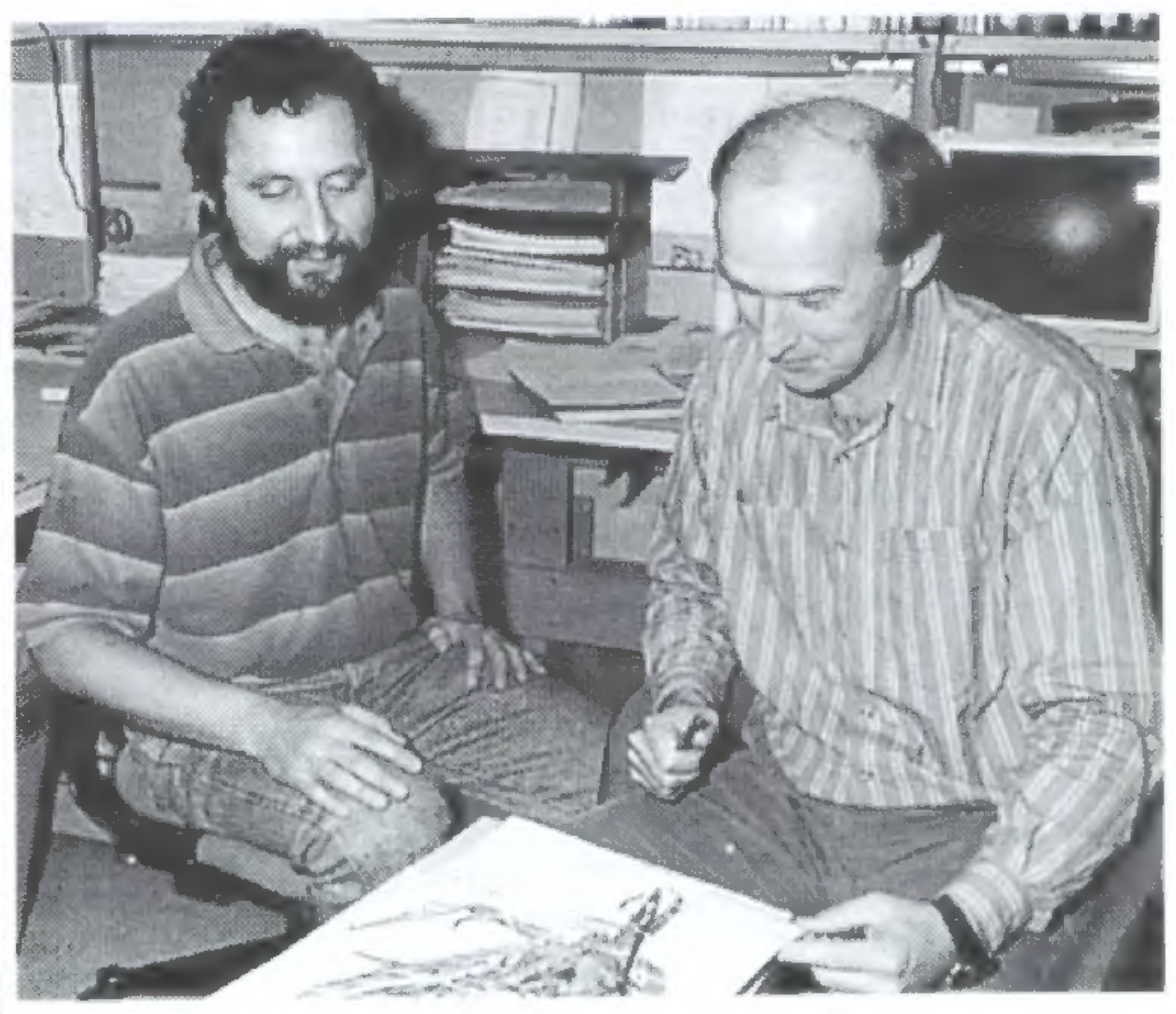


CLIFF WILLIS

▲ *Guanghua Zhu of China is working toward a Ph.D. in systematics, specializing in plants of the neotropics with Garden curator Tom Croat, an expert in the Araceae.*



▲ *Sylvain Razafimandimbison of Madagascar is a Ph.D. candidate in systematics. He earned his M.S. in plant ecology in Madagascar, where he worked for the Parc de Tsimbazaza for eight years.*



▲ *Gabriel Picón worked for the Department of Conservation in his native Venezuela for eight years. He is earning an M.S. in conservation biology, developing a computerized geographic information system to map distributions of rare and endemic plant species with his advisor, Garden curator Paul Berry (right).*

Home Gardening

COLD FRAMES AND HOTBEDS

GARDENING IS AN ACTIVITY inextricably entwined with the seasons, and timing is a key element that often spells the difference between success and failure. It is not surprising that gardeners over the ages have devised growing systems that allow them to work around the vagaries of nature. Two such systems are cold frames and hotbeds, or simply, "frames".

Construction

Gardening frames are basically large, rectangular, bottomless boxes covered with a translucent lid, or "light." The ancient Romans are said to have used thin sheets of mica over frames for forcing edible crops. Modern lights can be the traditional glass window sash or some of the newer plastics made from either rigid or flexible materials, such as those commonly used for both permanent and temporary greenhouse structures. Frames are most frequently built of wood, but metal, plastic, brick, stone, concrete block, concrete, or even straw bales can be used. Lighter materials allow a degree of portability.

Frames are constructed so the back, which is placed to the north, is several inches taller than the front. As a result the frame slopes to the south, allowing more efficient entry of sunlight and water drainage.

While frames can be constructed in the open, it is best if the rear wall is protected by a wind break. This could be a building, a rising slope, a hedge, or simply a stack of straw bales. Protection from prevailing winds helps to prevent heat loss during cold weather and guards against damage from sudden gusts of wind when the lid is propped open to vent excess heat.

When supplied with artificial bottom heat, a frame is referred to as a hotbed. When the heat is gained only from the sun, it is called a cold frame. In spite of their similarities, hotbeds and cold frames serve different purposes, and each is managed in a slightly different fashion.

Heat Control

Heat control is important in managing frames. On sunny days frames may need to be opened and ventilated. Heat buildup can cause young plants to grow soft and spindly, and extreme heat can kill them; or a sudden turn in the weather can cause temperatures in frames to drop as rapidly as they rose. Gardeners must be alert to changing conditions and prepared to take quick action.

To guard against heat loss at night or on extremely cold days, frames may need extra protection. Traditionally straw mats have been used, as well as old blankets, tarps, or burlap sacks stuffed with leaves or straw. Modern insulating materials such as styrofoam boards are extremely efficient. Be sure to fasten them so they will not blow away.

To provide heat for hotbeds, a mixture of horse manure and straw is traditionally used. Basically one digs a pit, constructs an in-ground compost pile, and tops it with a deep, sifted layer of rich potting soil. As the manure ferments the resulting heat rises through the soil root zone, increasing the temperature within the frame, where it is captured and retained by the glazing. Unfortunately, making manure hotbeds is something of a lost art. Many modern gardeners are so far removed from their rural roots that they have become squeamish about using animal manure. And as the number of nearby farms dwindles, so does our access to traditional raw materials.

A high-tech alternative is available in the form of electricity. Electric heating cable is a clean and simple substitute for manure, but like other modern options it is more expensive. The addition of an adjustable thermostat allows one to fine tune the soil temperatures to accommodate the changing needs of plants throughout the seasons. Always be sure to use properly grounded equipment and follow safety codes.

As a final bow to technology, automatic, temperature-sensitive vents are now available to open and close the frame while the gardener is away. These work best only with lightweight glazing and framing systems.

Timing

Heat-loving plants such as tomatoes, eggplants, peppers, sweet potatoes, and the cucurbits are best started in the hotbed sometime in mid-March. Timing is crucial, as starting too early may result in overly large plants and too little space to maintain them until the weather permits transplanting. Hotbeds can also be used to root cuttings of many garden plants.

Uses

There are many advantages to growing your own plants. On a practical note, you'll save money. For the cost of only the packets of seeds, you can produce a much greater variety of plants than are commonly available at local nurseries. Seeds can be sown directly into a prepared bed within the frame, or sown into flats, individual pots, or cell packs placed on the surface of the ground. Either way, the plants you raise will be of the highest quality and perfectly acclimated to conditions in your own garden.

Cold frames are particularly useful for starting cold-tolerant plants. As much as two months can be gained on the growing season, but one month is more realistic. Plants are dependent on just the right temperature to sprout, but also require sufficient sunlight to grow vigorously. Seedlings may simply sit there until daylight lengthens. Beginning in early to mid-February in the St. Louis area, garden flowers such as petunias, ageratum, salvia, snapdragons, lobelia, pansies, stock, cornflowers, and larkspur can be sown. Onions, lettuce, and kale for the vegetable garden can be sown about the same time. By the first of March cabbage, cauliflower, and the other broccoli family plants can be started.

As spring progresses, cold frames are used to "harden off" young plants destined for the garden. With the onset of warm weather in May, the spring cold frame season is essentially over.

With the arrival of autumn, cold frames can be used to provide protection for tender perennials and rooted cuttings of trees and shrubs.

Forcing Bulbs

Cold frames are also ideal for forcing hardy spring bulbs for winter display. Potted

DIRECTORY

Regional Plant Societies

The list below includes many of the plant societies that are active at the Missouri Botanical Garden. Names and telephone numbers for contact persons change frequently; please call the Kemper Center for Home Gardening at 577-9440 with changes, additions, or to obtain more information.

African Violet Council	*Ardath Miller*	394-9190
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Ellis Evans*	843-3767
Daylily Society of Greater St. Louis	*John Eiseman*	991-2838
East Central District Federated Garden Clubs of Missouri		
Gardeners of America (formerly Men's Garden Clubs of America)(Ozark Region)	*Russell McClellan*	837-2470
Gateway Chapter of the North American Rock Garden Society	*June Hutson*	577-9402
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Ikebana International		
Iris Society of Greater St. Louis		
Mid-America Regional Judging Committee of the American Orchid Society	*David Brown*	727-2385
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Carole Sebastian*	993-9270
Saintpaulia Society		
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Sue Reed*	965-6813
St. Louis Horticultural Society		
St. Louis Water Gardening Society		
West County Daylily Club	*Roy Bohrer*	240-8780

TELEPHONE HELP

The Garden has several telephone services available to assist you.

GardenLine **577-9400**
24-hour recorded information about Garden events, hours, admission and directions. Outside area code 314, call **1-800-642-8842** toll free, 24 hours a day.

Horticultural Answer Service **(314)577-5143**
Monday through Friday, 9:00 a.m. to noon, Master Gardeners are on hand to answer your gardening questions.

Master Composter Hotline **(314) 577-9555**
9:00 a.m. to noon, Monday through Friday. Specially trained Master Gardeners are on hand to answer your questions about yard waste management techniques. After hours leave a message and your call will be returned. The Master Composter program is supported by the Monsanto Fund.

HortLine **(314) 776-5522**
24-hour recorded gardening information is available with a touch tone telephone. You will need a brochure listing the hundreds of HortLine topics in order to use the service; you may request a brochure by calling the Kemper Center for Home Gardening at (314) 577-9440, 10 a.m. to 4 p.m. daily, or send a stamped, self-addressed envelope to HortLine, Kemper Center for Home Gardening, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

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bulbs can be placed into frames in September or October. Cover the pots with a thick layer of mulch such as leaves or straw all the way to the top of the frame, and fasten the glazing in place. In eight to twelve weeks the bulbs will be sufficiently rooted so they can be brought indoors and forced into bloom.

Vegetables

Cool season vegetables, especially leafy greens, can be grown in frames until well past frost. The key to managing frames in the autumn is to get the plants off to a vigorous start before the onset of significantly shorter days. This means starting plants at staggered intervals beginning in late July and continuing until early September.

Once the winter season arrives, very little additional growth occurs because daylight is simply too brief. Healthy plants will wait until they are either harvested or the days get longer. Growth will begin again in late winter or spring.

Further Reading:

If you are interested in trying a cold frame or hotbed, I recommend the following:

- *The New Organic Grower's Four Season Harvest*, by Eliot Coleman, Chelsea Green Publishing Company.
- *High-Yield Gardening*, by Marjorie B. Hunt and Brenda Bortz, Rodale Press.
- *Solar Gardening: Growing Vegetables Year-Round the American Intensive Way*, by Leandre Poisson and Gretchen Vogel Poisson, Chelsea Green Publishing Company.

— *Chip Tynan,*
MBG Horticulturist

The William T. Kemper Center for Home Gardening is open 10 a.m. to 4 p.m. daily. Admission is free with regular Garden admission. For information on classes and activities at the Center, please call (314) 577-9440.

The Plant Doctor is available at the Kemper Center for walk-in consultations from 10 a.m. to noon and 1 to 3 p.m. Monday through Saturday.

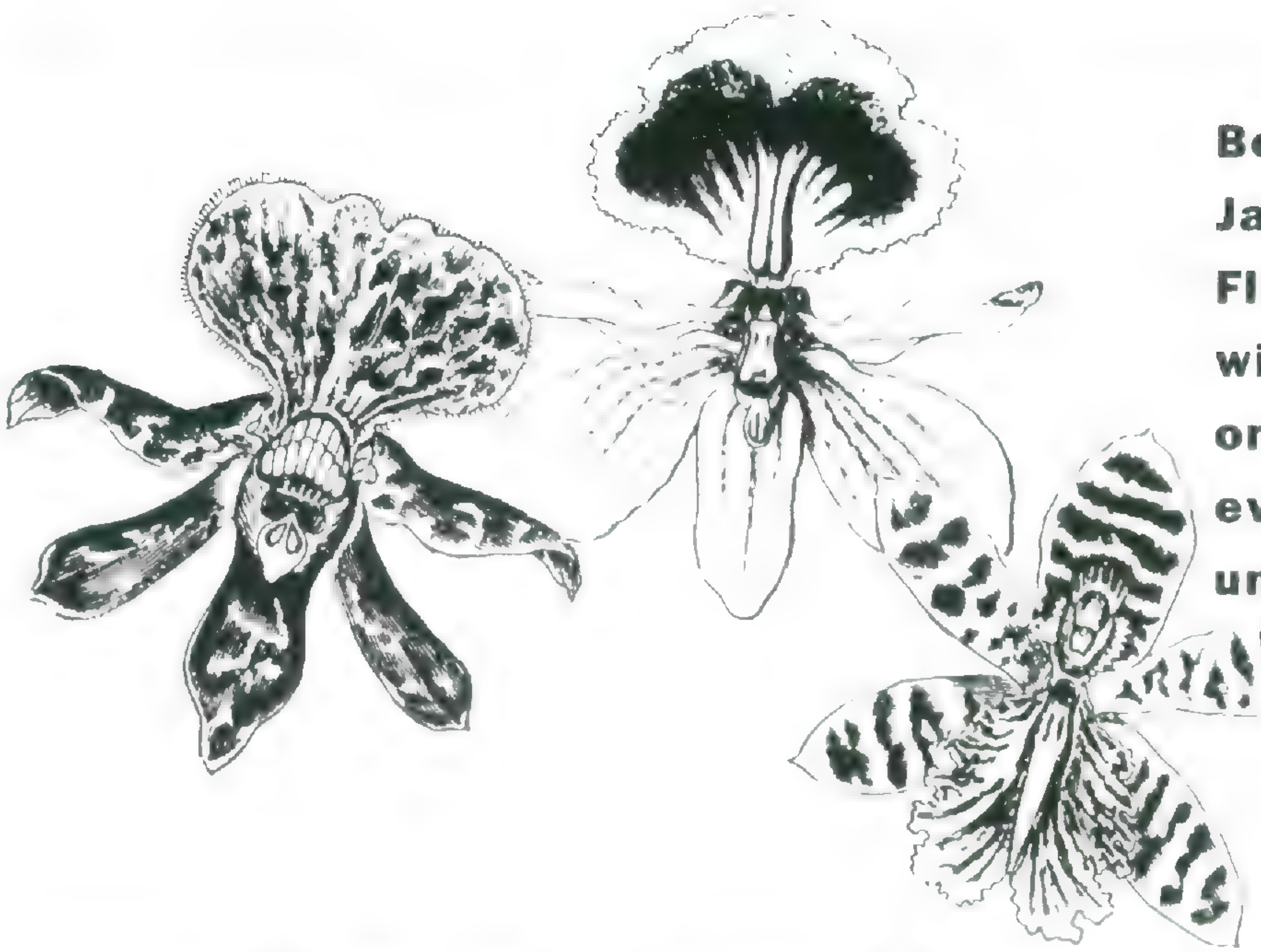
Call HortLine for recorded gardening information 24 hours a day! For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

Calendar

january 16 – february 17

Exhibit of Orchid Photographs

9 a.m. to 5 p.m. daily, Monsanto Hall. An exhibit of beautiful color pictures by St. Louisan Herb Bohren, who has photographed North American orchids in the wild for many years. The Garden's work in orchid research will also be featured. Free with Garden admission.



Beginning in January: Flower Shows will be open on Tuesday evenings until 8 p.m.!

january 20 friday

Members' Preview: "Orchids in Thailand"

5 to 8 p.m., Ridgway Center. Get a special sneak preview of the spectacular 1995 Orchid Show! Entertainment, cash bar. The Garden Gate Shop will be open, featuring its annual orchid sale. Dinner buffet will be available in the Gardenview Restaurant. Free, for members only.

january 21 saturday — february 20 monday

1995 Orchid Show: "Orchids in Thailand"

9 a.m. to 5 p.m. daily; open until 8 p.m. on Tuesday evenings. Orthwein Floral Hall. Thailand, a major source of the world's horticultural orchids, inspired the locale for this colorful display. Authentic bronze gate figures reminiscent of the gardens of Bangkok guard the entrance to a garden filled with orchids from the Garden's award-winning collection of usual and unusual species. An ornate golden pavilion and roofs of blue and orange tile complete the exotic scene. Beginning this month, the public will be charged admission to flower shows: $2 for ages 13–64 ; $1 for seniors age 65 and over; children 12 and under are free. As always, admission is free for Garden members.

february 4 saturday

Wild Mushroom Cooking

1 to 3:30 p.m., Kemper Center for Home Gardening demonstration kitchen. Co-sponsored by the Missouri Mycological Society. Join Laurence Stickney of Oakland, California, past president of the San Francisco Mycological Society and past chair of the North American Mycological Association's Mycophagy Committee. He also writes the culinary column for Mushroom: the Journal of Wild Mushrooming. For the past 25 years he has been traveling worldwide collecting, cooking, and eating mushrooms everywhere he goes, in the field, in the forest, or in fine restaurants.

Participants will be able to taste dishes made from a wide selection of fresh and dried wild mushrooms including chanterelles, black trumpets, blewits, porcini, morels, and even fresh truffles flown in from Europe. Advance registration is required. Cost is $12 per person for members of the Garden or the Missouri Mycological Society; $15 for non-members. Please call (314) 577-9441 to register.

february 4 saturday

Black Repertory Theatre

4 p.m., Shoenberg Auditorium. In honor of Black History Month, enjoy "Griot Stories," folktales performed by the Black Repertory Theatre. Limited seating; free admission.

CLIFF WILLIS

february 5 sunday

Celebrate the Gospel

3 p.m., Ridgway Center. The fifth annual concert in honor of Black History Month, with performances by some of the finest Gospel singing groups from the St. Louis area. Free with Garden admission.

Members' Days

january 10 tuesday *"The World Came to St. Louis"*

1 p.m., Shoenberg Auditorium. Sue Oertli, a past president of the Members' Board, presents the slide show developed by her mother, using original glass plate negatives taken by Mrs. Oertli's grandfather on a visit to the 1904 World's Fair. Seating is limited; free, for members only.

february 22 wednesday *The Gardens of Great Britain*

10:30 a.m., Shoenberg Auditorium. Brian Ward, retired horticulture supervisor at the Garden, presents a delightful tour of beautiful British gardens, including the Royal Horticulture Society Gardens at Wisley, Hidcote Manor in the Cotswolds, Powis Castle in North Wales, and the Royal Botanic Gardens, Edinburgh. Seating is limited; free, for members only.

Preview of Events Coming in March

march 15 wednesday

Lecture: "The Grand Saga of the Monarch Butterfly"

7:30 p.m., Shoenberg Auditorium. Dr. Lincoln P. Brower will present the fifth annual Jane and Whitney Harris Lecture of the International Center for Tropical Ecology of UM-St. Louis. Dr. Brower, a professor of zoology at the University of Florida, is internationally known for his work in ecology, evolution, animal behavior, and conservation biology. He is currently writing a book on the monarch butterfly, including its migration between the northern U.S. and Mexico and the interactions of the butterflies with plants and bird predators along the way.

Dr. Brower has lectured and done field research all over the world. He is the author or co-author of more than 175 scientific papers, has produced four documentary films on biology and one on federal flood control policy in the U.S. He has appeared on Good Morning America, ABC Evening News, 20/20, The Discovery Channel, NOVA, and many other programs.

Seating for the lecture is limited; admission is free. A reception will follow by advance reservation only; please call 553-5219 for more information.

march 17 friday

Lecture: "Linking Ethnobotany, Traditional Healing, and Biodiversity Conservation in the Rain Forests of Belize"

7:30 p.m., Shoenberg Auditorium. Dr. Michael Balick will share knowledge learned from two decades of studies in Central and South America, the Caribbean, Asia, and the Middle East, where the traditions of using native plants are in danger of disappearing. Dr. Balick dedicates his work to documenting this knowledge and making it available to all, including future generations.

Dr. Balick is director and philecology curator of economic plants at the Institute of Economic Botany at the New York Botanical Garden. He serves as chair and is a co-founder of the Ix Chel Tropical Research Foundation in Cayo, Belize, home of the Panti Mayan Medicine Trail, a living museum where many of Belize's useful plants can be observed in their natural setting. He is the author of *Rainforest Remedies: One Hundred Healing Herbs of Belize*.

Seating for the lecture is limited. Tickets are $2 for Garden members, $3 for non-members.

every day

Free Walking Tours

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a fascinating tour of the Garden. Free with regular admission.

wednesdays & saturdays

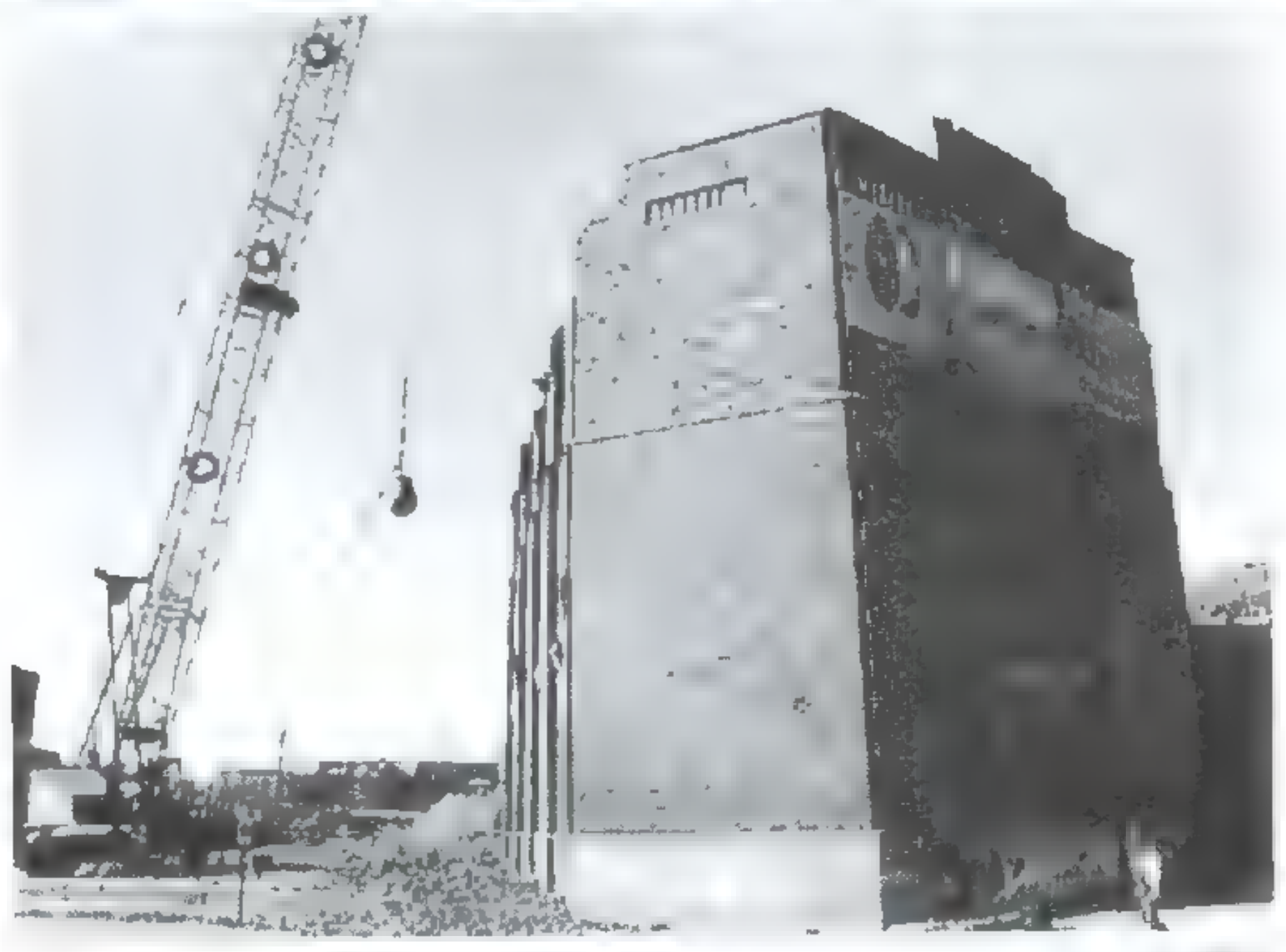
Garden Walkers' Breakfast

7 a.m., grounds. In cooperation with the American Heart Association, the grounds open early every Wednesday and Saturday morning to encourage fitness walking. Greenhouses open at 9 a.m. Breakfast is available for purchase in the Gardenview Restaurant, 7 to 10:30 a.m.

CLIFF WILLIS

Going, Going...

October 15–18, 1994, the corner of Shaw and Vandeventer was closed while the Polar Wave Ice & Fuel Building was demolished to make way for the Garden's new research center.



Gone.

But not forgotten. Substantial quantities of material are being salvaged and recycled, including brick and the ornaments that adorned the roof.

Gardeners' Fair
LAWN & GARDEN 1995

NEW!

Coming on Friday, Saturday and Sunday – April 21, 22 and 23, 1995

THREE DAYS OF FUN, FACTS, AND IDEAS for the home gardener! Whether you have a green thumb or you're a weekend weed whacker, come to the Garden and the Kemper Center for Home Gardening for displays, vendor booths, exhibits, and to meet nationally recognized gardening experts. Watch for details!

Featuring —
Spring Plant Sale
Gardening Marketplace
Gardeners' Bookstore
Floral Designers
Landscape Designers
Lawn & Garden Stores
Gardening Techniques with Garden staff experts
Master Gardeners
Plant Societies

and the latest on —
Garden Accessories, Tools, & Equipment
Lawn Care
Trees
Shrubs
Flowers
Vegetables
Annuals
Perrenials
Indoor Plants
Herbs

Sponsored by –
St. Louis Post-Dispatch
Grandpa's
Outdoor Inc.
Premier Homes, Inc.

Tour de France – Merci Beaucoup

IT WAS AN EVENING of berets and beignets, wine and waltzes, champagne and croissants on November 12 as "Tour de France" welcomed over 350 guests to Ces & Judy's Le Chateau. Thanks to the generosity of sponsors who underwrote the entire party, the full value of every ticket benefitted the Garden. We extend our warmest appreciation to our sponsors and to the Executive Committee who made it a delightful evening for all, and especially to Ces & Judy for their spectacular food, service, and hospitality.

VERY SPECIAL THANKS TO OUR SPONSORS —

Ces & Judy's Catering
Commerce Bank
Delta Airlines
Famous-Barr
Lancôme, Ltd.
Mississippi Valley Advisors
Schnucks
Upbeat Inc.

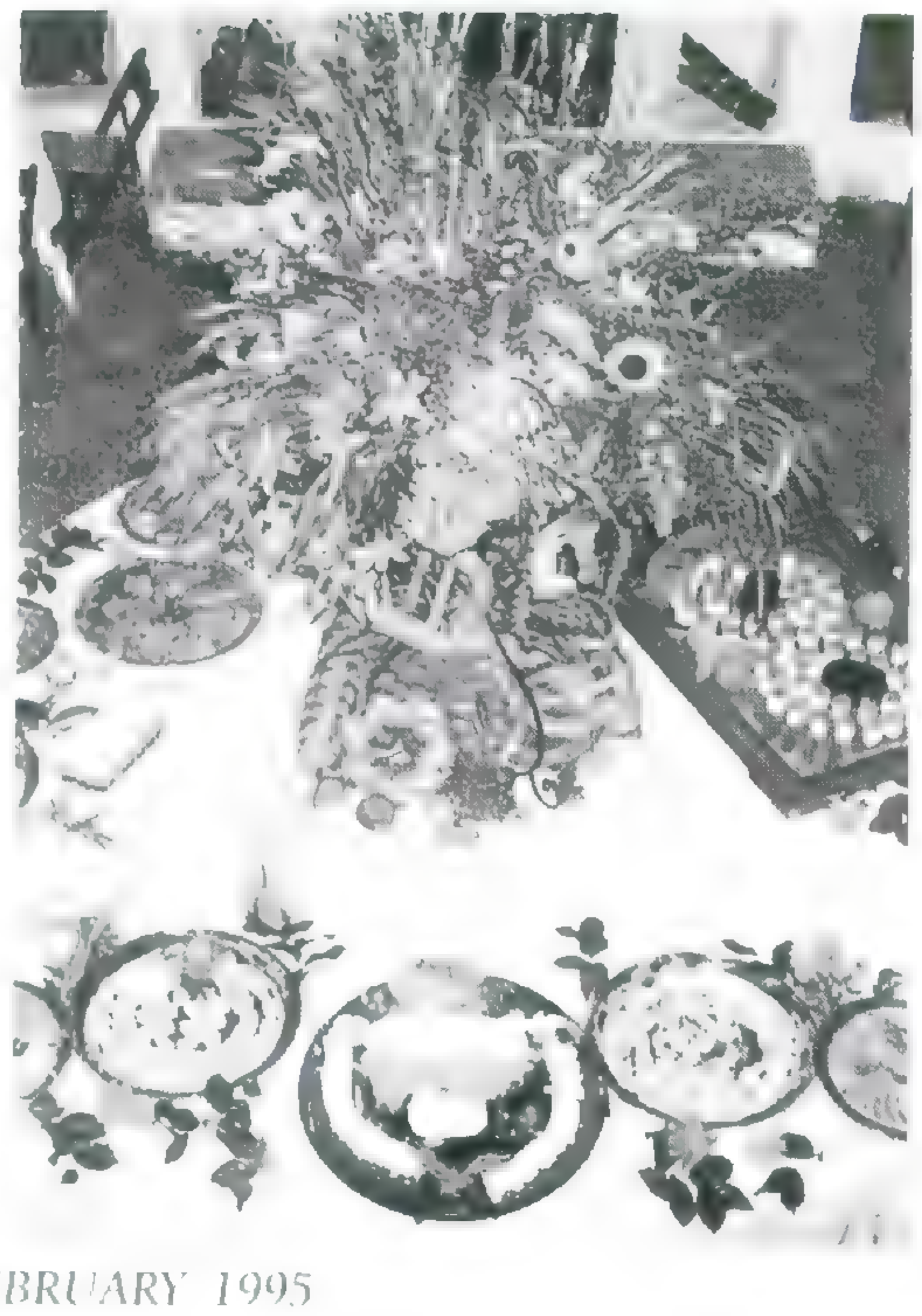
TOUR DE FRANCE COMMITTEE

Benefit Chairs
Mary Glaub
Mary Longrais

Executive Committee
Ann Bowen
Holly Brigham
Gale Dean
Bill Gilbert
Jim Goggins
Terrie Hogan
Mim Kittner
Mary Phelan
Julie Schnuck
Susie Schulte
Glee Stanley
Jane Tschudy

Above: Shown enjoying the party are (from left) co-chairs Mary Longrais and Mary Glaub, with Jane Tschudy, president of the Members' Board.

Right: The table decorations by Schnucks floral designer Connie Gooch were spectacular arrangements of autumn flowers, grasses, and vegetables that complemented the exquisite presentation of the foods of France.



Help Wanted

VOLUNTEERS ARE NEEDED for the Membership Services Desk in the Ridgway Center. Workers greet visitors, sell memberships, answer questions, and have a great location for scouting new items in the Garden Gate Shop.

- Flexible schedule!
- Great benefits: you get to meet lots of wonderful people!
- To apply, please call Brenda Banjak, 577-9517.

GARDEN TRAVEL PROGRAMS 1995

Natural History Down Under: Wildflowers and Wildlife of Western Australia

September 9 – 24, 1995

THE GARDEN is pleased to announce an exceptional travel opportunity to see the wildflowers and wildlife of western Australia. Join Dr. Larry DeBuhr, director of education, and Dr. Nancy Morin, assistant director of the Garden, both of whom have studied plants in western Australia, on this natural history exploration.

Western Australia offers one of the greatest displays of wildflowers and unusual animals on Earth, resulting from its Mediterranean climate, varied soils and topography, and diverse pollination. The flora of this corner of the driest continent reaches its peak of spring bloom in September.

After an overnight flight from Los Angeles, the tour starts with a morning visit to the Royal Botanic Garden in Sydney and an afternoon cruise around Sydney Harbor, acclaimed as one of the most beautiful in the world. The cruise will offer magnificent views of the shoreline and city and the famous Sydney Opera House. The following day will be spent visiting the Blue Mountains, with their splendid scenery, dramatic cliffs, deep fern-filled canyons, and wildflower covered eucalyptus forests. Walk along the Wentworth Falls Track and visit the famous rock garden at Mt. Tomah Botanic Garden.

The next day will take us to the port city of Perth in western Australia. The following five days will be spent exploring the sand plains, coastal bluffs, granite outcrops, mountains and forests north of Perth. As we work our way north to Geraldton on the west coast, we will see thousands of magnificent wildflowers in splendid bloom, hundreds of kangaroos hopping through the bush, and dozens of unusual species of birds, including kookaburras, parrots, and the exotic gallah. Visitors to western Australia will have the opportunity to study rare species of carnivorous plants that grow nowhere else in the world.

Our explorations will next take us to the lush southwestern region where the rainfall during the winter exceeds 40 inches a year. The rich eucalyptus forests of the south coastal areas will provide opportunities to see many unusual species of terrestrial orchids, paperbark swamps, black swans, and a variety of bird species not found in North America. We will visit the giant karri tree forests, with some trees towering 285 feet above the ground. Emus, kangaroos, bush marsupials may be sighted, along with lorikeets, parakeets, and parrots with their dazzling plumage.

Our final stop before returning to Perth will be the Stirling Mountain Range, the highest range in western Australia. Hundreds of wildflower species, 80 percent of which are found nowhere else on Earth, will be found in the Stirling Mountains. In addition, scarlet robins, white-tailed cockatoos, wedge-tailed eagles and New Holland honey creepers may be seen.

This truly exciting adventure brings the natural history enthusiast to one of the Earth's exceptional natural areas. In addition to Dr. DeBuhr and Dr. Morin, local natural history guides will accompany the group at all points in western Australia. Extensions to New Zealand, New Guinea, Tasmania, or other areas in the South Pacific can also be arranged. For additional information, please call Aventure Travel at (314) 863-7474 or the Missouri Botanical Garden at (314) 577-5140.

YOU AND THE ENVIRONMENT

New Composting Facility

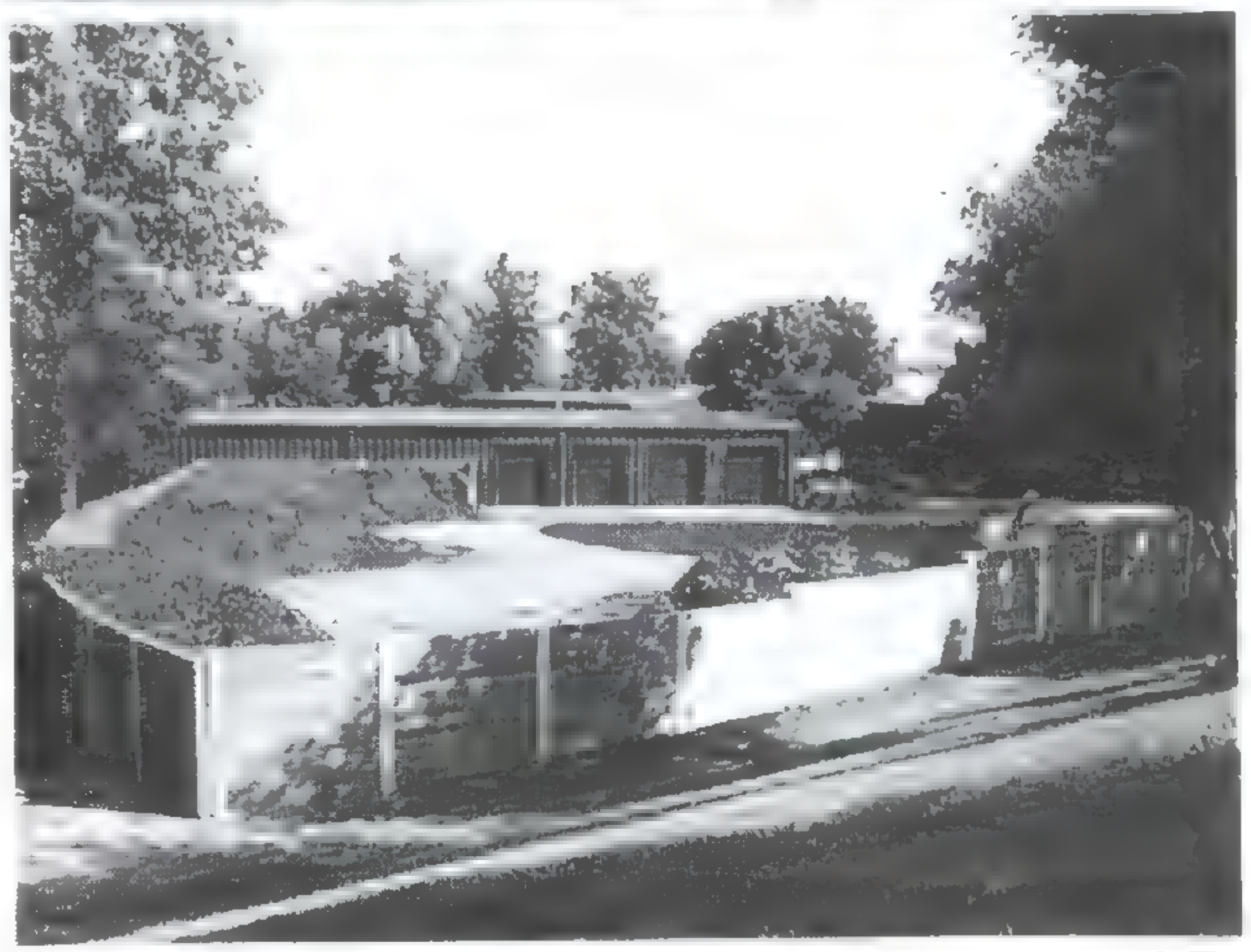
CONSTRUCTED THIS PAST SUMMER with support from a grant by the Missouri Department of Natural Resources for solid waste disposal, the Garden's new composting facility has been up and running since September. The one-third acre site processes all of the yard waste generated on the Garden grounds. That's a lot of grass clippings, leaves, and branches!

The new composting facility is also utilized spring and fall for adult education classes and as a model for managers of composting services for institutions and small municipalities. The Master Composters, a group of about 100 volunteers trained at the Kemper Center through a grant from Monsanto Fund, offer classes and demonstrations to groups throughout the community. Call the Kemper Center for Home Gardening at 577-9440 for information on classes, workshops for composting professionals, and to contact the Master Composters' speakers bureau.

The new composting facility also features a demonstration area equipped with interpretive signs and a variety of composting bins appropriate for residential use. Interested homeowners can stop by any time to see the facility, which is located just to the north of the Kemper Center for Home Gardening and Cohen Amphitheater.

"Composting is responsible for substantial reductions in the volume of waste going into landfills," said Dr. Steven Cline, manager of the Kemper Center. "Our new facility expands the Garden's capability and the services we can offer to the public. We are currently trying to find support for upgrading the heavy machinery required by an operation of this size, especially a new front-end loader and a contract grinder."

CLIFF WILLIS



Profiles – The Garden Guides

Since 1968, the Garden Guides have led adults and children on educational tours of the grounds. The Garden is fortunate indeed to benefit from the tireless services of these outstanding volunteers, as are the thousands of visitors who benefit from their expertise and enthusiasm as they discover the wonder and excitement of science, art, and nature behind the beauty of the displays at the Garden. The profiles below are the first in a series of articles that will highlight the extraordinary contributions of Garden Guides. — Editor

Ann Case

With no formal background in botany other than an interest in nature, Ann Case has become one of the Guides' most knowledgeable horticulturists. She began volunteering at the Garden in 1977, working with the Members' Board, and the following year she was trained as a Guide. Ten years later she became a Master Gardener and in 1992 was named Master Gardener of the Year, as well as receiving the Extra Service Hours award at Volunteer Evening. Ann is currently co-chair of the Garden Guides, a member of the steering committee, and co-editor of the Master Gardener newsletter. She works regularly answering questions for the Horticultural Answer Service and the Plant Doctor desk, lectures on perennials and composting for adult education courses, and specializes in tours of the Japanese Garden and the Introduction to the Garden. A native St. Louisan, Ann also serves on the board of the Women's Exchange, as vice president of the Missouri Chapter of the Nature Conservancy, and as a lay reader at the Church of St. Michael and St. George.

Edna Dependahl

Edna first volunteered at the Garden in 1968 as a change of pace from her stressful career as a night shift registered nurse. She worked in the Climatron for 16 years, doing everything from answering the phone to tracking blooming plants to greeting visitors and answering their questions. A member of the very first Garden Guide class of 1968, Edna is a favorite with visitors and claims that she meets exceptional people on every tour. Born and reared on a farm in Bond County, Illinois, Edna enjoys the beauty and serenity of the Garden as much as the people lucky enough to take her tours.

Mary Jane Kirtz

Mary Jane brings her background as a high school English teacher to her enthusiasm for the history of the Garden. In 1982 she began to compile a written archive of information on the sculpture collection which has become the authoritative source on all the works of art on the Garden's grounds. Mary Jane specializes in tours for adults on the Garden's sculpture collection, the life of Henry Shaw, trees, and the Japanese Garden. She was co-chair of the Guides 1983-85, co-chaired two training classes, earned the Special Achievement Award in 1982 for her sculpture writings, and currently serves as the Guides' archivist. She is a native of St. Louis, a graduate of Washington University, and a former director of the Education Department at the Missouri Historical Society.

From left: Ann Case, Maurita Stueck , Mary Jane Kirtz, Joe McKenna, Edna Dependahl.

Joe McKenna

Joe, who became a Garden Guide four years ago, brings an outstanding background to his volunteer work. He taught Industrial Engineering at Cornell University for four years, at Syracuse University for eleven years, and at St. Louis University for eleven years, where he became chairman of the Industrial Engineering Department. When he retired from teaching in 1972, Joe developed a second full-time career as a labor arbitrator, working for 26 years as a member of the National Academy of Arbitrators and writing about 500 decisions in labor disputes. He has published articles in professional and general-interest magazines, including *America* and *Catholic Digest*, and is an accomplished amateur photographer whose work has been exhibited and honored internationally. A native of Hamilton, Ontario, Canada, Joe moved to the United States in 1948 and became a U.S. citizen.

Maurita Stueck

With a professional background with the Girl Scouts of America, a degree from Washington University in sociology and psychology, and a love of the outdoors, Maurita began her volunteer service at the Garden in 1973. As chair of the Guides in 1975-77, Maurita was responsible for scheduling all guides and instructors. She has also trained Guides, reorganized the Guides' training program, served on the Members' Board, and been honored as Volunteer of the Year. Maurita received the Special Achievement Award for designing new curricula for classes and has made important contributions with outreach programs for seniors, serving as an instructor for "Gardens to Go". After all her years of service, Maurita is still enthusiastic about her activities at the Garden, cherishing the opportunities to be out of doors, learning constantly, and working alongside staff and other volunteers.

CLIFF WILLIS

The new Garden Guides include (back row, from left): Robert Hensler, Joyce Turner, George Adler, Bill DeRoze, Bill Wall, Todd Schroeder. Front row, from left: Carroll Baechle, Bernice Wiegand, Judy Lincoln, Susan Walter, Betty Scheele, Lynn Giessing, Dorothy Ann Effinger, Virginia Noe, Mary Wilke, Virginia Murphy. Trainers for the class were Garden Guides Joe McKenna and David Barnum, and Sandra Rode. Not pictured: Guides Thomas Brinker, June Masek, Elzbieta Reavis; and Instructors Stan McLean, Bernice Raineri, and Fran Pollvogt. Stan and Fran are already members of the Garden Guides.

New Guides and Instructors

TWENTY-FOUR VOLUNTEERS completed their training as Garden Guides and Volunteer Instructors in December. These outstanding men and women will work with the thousands of children and adults who visit the Garden each year for tours and classes.

"The Garden could not be the educational resource it is today without our volunteers," said Sandra Rode, manager of educational services. "The Guides and Instructors bring enthusiasm and a wealth of personal experience to their teaching, and allow us to serve many, many more people that we could with staff alone. With their talents and good humor they make an extraordinary contribution."

The 21 new Guides and three new Instructors received 40 hours of formal instruction and 25 hours of reading and activity assignments, focussing on natural science concepts, the Garden's mission and facilities, and teaching techniques. For information on becoming a volunteer with the Education Division, please call Jeanne McGilligan at (314) 577-5187.

TIM PARKER

HENRY SHAW CACTUS SOCIETY SUPPORTS THE GARDEN — Pat Thomann, president of the Henry Shaw Cactus Society, presented the Society's annual donation to the Garden last fall to (from left): Dr. John MacDougal, conservatory manager; Dr. Peter H. Raven, director; and Dr. Shannon Smith, director of horticulture. The Henry Shaw Cactus Society, currently celebrating its 50th anniversary year, provides annual support for the Garden with funds raised from plant sales and donations. The Society also provides expert assistance to the horticulture staff in managing the Garden's collection of cacti and succulents and in managing the transfer of valuable plants from the old Desert House.

TOWER GROVE HOUSE

A Holiday Thank You

THE GLORIOUS DECORATIONS that transform Tower Grove House with Victorian holiday splendor are made possible by the talent and hard work of many volunteers. We extend our warmest thanks for another beautiful display to all of those who contributed their time and energy.

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Field Trips that Really Teach

SCHOOL FIELD TRIPS used to be pretty passive experiences for students and teachers: a chance to get out of the classroom and have fun visiting a museum where people told you things you immediately forgot. The Garden is working to change all that by improving the way botanical gardens help schools teach science.

This fall the Garden's Education Division began testing a new program called "Discovery Units." Funded by the National Science Foundation, the Discovery Units program is being developed by the members of the Midwest Public Garden Collaborative: Missouri Botanical Garden, Holden Arboretum, Morton Arboretum, Chicago Botanic Garden, and Minnesota Landscape Arboretum. The Collaborative works to involve botanic gardens in science education reform nationwide.

The key to the program is reinforcing the exciting things seen on field trips with classroom lessons. Teachers receive workshop training and a kit of materials, so they will be familiar with the science concepts. Garden volunteers assist teachers to take the lead, both in the classroom and during the field trip. Students receive four to six introductory lessons before the field trip, to find out what they already know and build skills for the visit. They come to the gardens equipped with questions to ask and journals for recording data. Back at school, the students share their results and have a follow-up class to summarize what they have learned.

Does it work? Extensive testing indicates that the approach is very successful. "Garden volunteers report that students come in clutching their journals, look hard, and ask lots of questions — hallmarks of a great field trip," says Sandra Rode, manager of educational services at the Garden. Teacher evaluations from 13 test schools from the greater St. Louis area indicate that teachers feel encouraged to use the new techniques. Students are making estimates, writing descriptions, recording data, and displaying increased focus and understanding.

Discovery Units emphasize five basic science concepts: life processes, structure and function, biodiversity, interdependence of life, and the impact of human activity on the environment. This year the gardens are designing and testing Discovery Units for lower elementary grades; in the next two years units will be developed for early childhood and upper elementary grades.

Above: Teachers and students explore the Garden on their Discovery Unit field trip. Classroom preparation before the visit makes the experience a meaningful one. Right: Students arrive for their visit to the Garden ready with questions to ask and journals for recording the answers they find.

Volunteers Wanted: LREC Will Train "Master Ecologists"

The Litzsinger Road Ecology Center (LREC) is launching a new Master Ecologist program to provide free training in exchange for volunteer service in education programs at the LREC. Patterned after the successful Master Gardener program, the Master Ecologist program will teach interested adults about the interrelationships of living things and the environment.

Master Ecologists can be adults of any age who enjoy learning, sharing, and volunteering. Applicants do not need to have experience in science or education, but they should demonstrate interest in exploring ecological systems and working with young people. A variety of projects at the LREC will be available to participants.

The LREC is a 34-acre nature study center in St. Louis County, managed by the Garden and staffed by members of the Education Division. For more information on the LREC Master Ecologist Program, please call Celeste Prussia, LREC program manager, at (314) 577-5117.

CLIFF WILLIS

Left: "Pioneer Prairies" introduces classes to the beauty of the restored prairie at Shaw Arboretum. Much of Missouri was covered with vast grasslands before European settlement, but today less than one percent remains. The prairie at the Arboretum demonstrates the importance of biodiversity and efforts to reclaim our prairie heritage.

Partnership Program Brings Students and New Ideas Together

St. Louis School Partnership Program builds a relationship between schools and businesses, professional associations, universities, cultural institutions, government agencies, and medical facilities. The Partnership Program serves students, teachers, and schools, creating learning opportunities that go beyond the traditional classroom setting.

Amy Haake of the Garden's Education Division explains that the Partnership Program works to provide enrichment programs for students in St. Louis public schools, enhance teacher morale, supplement schools' resources, and increase community involvement and support for our schools. The Partnership Program began in 1979 with ten pilot programs, added City-County shared programs in 1982, and today provides about 1600 programs involving over 300 sponsors, serving 94,000 students.

The Garden has been active in the School Partnership Program since 1980. Partnership classes at the Garden bring together culturally diverse groups from St. Louis City and County for such programs as Pioneer Prairies; Haiku; Urban Ecology; Dinosaurs in the Garden; Botanical Illustration; Magic of Plant Chemistry; Global Issues: Energy and Pollution, Tropical Rain Forest Deforestation, and World Hunger; Japanese Culture Days; Native American Culture Days; and Ecology through the Lens, a new photography course.

The Garden's School Partnership Program motivates and challenges students to excel, builds and strengthens relationships among people of diverse cultural backgrounds, and seeks to guide and inspire teachers.

CLIFF WILLIS

At left: "Botanical Illustration" classes teach students to observe plants closely and to appreciate the historical art of drawing plants for scientific and artistic purposes.

New Scholarship Fund Provides Opportunities for Children

The Garden is delighted to announce that the children of John and Laura Blumenfeld have established a scholarship fund in honor of their parents. The scholarship will provide educational opportunities for children to participate in classes held at the Garden after school, on Saturdays, and in the summer. Laura Blumenfeld, a longtime volunteer at the Garden, has made an important contribution to the Education Division as a Garden Guide. The Blumenfeld family invites friends of John and Laura Blumenfeld to contribute to the scholarship fund.

Left: Shown during work last summer, Walter Zaenker takes a sample from a plant in the Swift Family Garden.

Below, David Knechtle of the horticulture staff and Debra Sievers, a student summer intern from Southern Illinois University at Carbondale, place a cutting in the plant press.

Recording the Living Collection

THE GARDEN'S 79 ACRES contain a large collection of plants representing many different genera and families of the plant kingdom. In addition to being horticulturally interesting and beautiful, many of these are rare, endangered, or unusual, and come from all over the world.

The Plant Records office of the Garden's Horticulture Division maintains rigorous computerized records of every plant on the grounds. To supplement the computerized records, it is often important to have a tangible record of a plant. One way this can be done is to preserve dried specimens for posterity, a process referred to as vouchering.

Voucher specimens ultimately are housed in our herbarium, one of the largest in the United States with over 4.4 million specimens. Just as the Garden has plant collectors investigating the vegetation in various parts of the world, we are working to document what we have growing right here.

Scientific Value

Botanical researchers frequently make, exchange, and study specimens as part of their work on various groups of plants. For years to come, researchers throughout the world will be able to examine the features of plants preserved by Garden botanists.

Identification

Scientific accuracy and excellence in public education are hallmarks of the Garden's program of displaying its living plant collections to the visiting public. As much as we try, however, sometimes we do not have a complete or accurate identification of each of our plants. Preparing vouchers provides a way to further identify a plant; our own staff botanists can study the specimens or they can be sent out to experts. The hope is that the plant's correct scientific name can be determined or verified by one of these specialists.

Historical Record

Theoretically, specimens should last indefinitely if well cared for and thus can serve as permanent records. Each specimen obtained now documents a present planting, while examination of earlier specimens provides a link to the past. It is an interesting exercise to browse through the herbarium and see examples of plants that were growing here at various times. The history of a place like the Garden can be "read" by finding out what kinds of plants have been grown over the years. Although the practice of making vouchers has been sporadic throughout the history of the Garden, we are lucky that our past botanists made as many records as they did.

An Active Program

The horticulture staff, assisted by Walter Zaenker, a dedicated volunteer, are actively vouchering the living collection. Since it would be an impossible task to sample every different plant, we focus on permanent plantings, such as perennials that are likely to be growing at the Garden for a period of time, with less emphasis on annuals and many of the ornamental cultivars. The process of collecting from all of these plantings will take several years to complete.

Scientifically Useful Specimens

Since systems of plant classification rely heavily on reproductive structures, the sample should exhibit either flowers or fruits or both. If the plant is an annual or small perennial, the entire plant can be obtained; if it is a larger perennial such as a tree, then a single piece like a small branch will suffice. During the warmer months we concentrate on plants growing outdoors on the Garden grounds. With the onset of colder temperatures, the focus shifts to indoors plantings in the conservatories.

To prepare a voucher specimen, a plant press is first used to hold the plant material. Cuttings are arranged in sheets of

continued on next page

Have You Noticed...

On sunny winter days, when the garden seems bare, the spidery, yellow to red blossoms of witchhazels delight us with color and fragrance. *Hamamelis* flowers are remarkably hardy, able to withstand the severe cold they encounter during their blooming season between autumn and early spring. Four species and many cultivars of these woody ornamentals grow at the Garden. Eastern witchhazel, *Hamamelis virginiana*, and Ozark or vernal witchhazel, *Hamamelis vernalis*, are native to Missouri. The extremely fragrant blossoms of Chinese witchhazel, *Hamamelis mollis* (right), are the least hardy of all the witchhazels and are sometimes nipped by late frosts. Hybrids from *H. mollis*, *Hamamelis* x *intermedia*, bloom from late January into mid-March and are the showiest of all witchhazels.

JACK JENNINGS

VOUCHERING PLANTS continued

newspaper and held flat in the press until dry. After drying, the plant specimen is mounted on acid-free, 100% cotton rag herbarium mounting paper, labeled, and eventually filed away in the herbarium.

More than one sheet or specimen can be made from a plant at the time of pressing, and these duplicates can be sent to specialists for study. Also, the Garden's herbarium has established exchange programs with a number of other herbaria that allows participants to see what is being grown at other botanical gardens and arboreta.

Our ultimate goal is to prepare scientifically useful voucher specimens of most of the permanent living plant collection at the Garden. Such a program has great historical, archival, and botanical importance, and the effort will continue for some time to come .

— Alan W. Lievens, Ph.D.
Horticultural Taxonomist

Have You Seen... *Camellia chrysantha*

Camellia, a genus in Theaceae, the tea family, is very popular in the late winter when so many of its species are in flower in the Linnean House.

JACK JENNINGS

C. chrysantha ***blooms in the Linnean House during February and March.***

Camellia has about 200 shrub and tree species concentrated in southern and southwestern China, with species also found in several surrounding countries. Many camellias are important for their ornamental value, while another, *C. sinensis*, is the source of tea.

While nearly all camellia species, cultivars, and their hybrids have white, pink, or red flowers, there are only a few that have yellow blooms, including *Camellia chrysantha*. The Garden boasts a beautiful specimen of this unusual species in the Linnean House.

Camellia enthusiasts and plant breeders have long been interested in producing showy yellow-flowered plants. *Camellia chrysantha* caught the attention of the horticultural world because many speculated that it could be used as a potential source of genetic material in hybridization work. Only limited success has been achieved so far, but the work is likely to continue.

C. chrysantha is found in the wild in Vietnam and the province of Guangxi in southern China. It is rare in its natural habitat, preferring hilly limestone areas along streams and rivers, where it attains the size of a small tree.

The species was first described by Dr. Hu Hsen-Hsu in 1965. Because it differs in some respects from most camellias, Dr. Hu originally placed it in Theopsis, a genus recognized by some at that time as distinct from *Camellia*. In 1975, *C. chrysantha* was placed with other *Camellia* species, a position favored by experts in the taxonomy of the genus.

During the cold, dreary days of late winter, our flowering camellias in the Linnean House provide glorious color — including the elusive yellow of *C. chrysantha*. Although plants can be unpredictable, look for this one to bloom from late February into March. Our experience with *C. chrysantha* shows that it is one of the last of our camellias to bloom.

— Alan Lievens, Ph.D.,
Horticultural Taxonomist

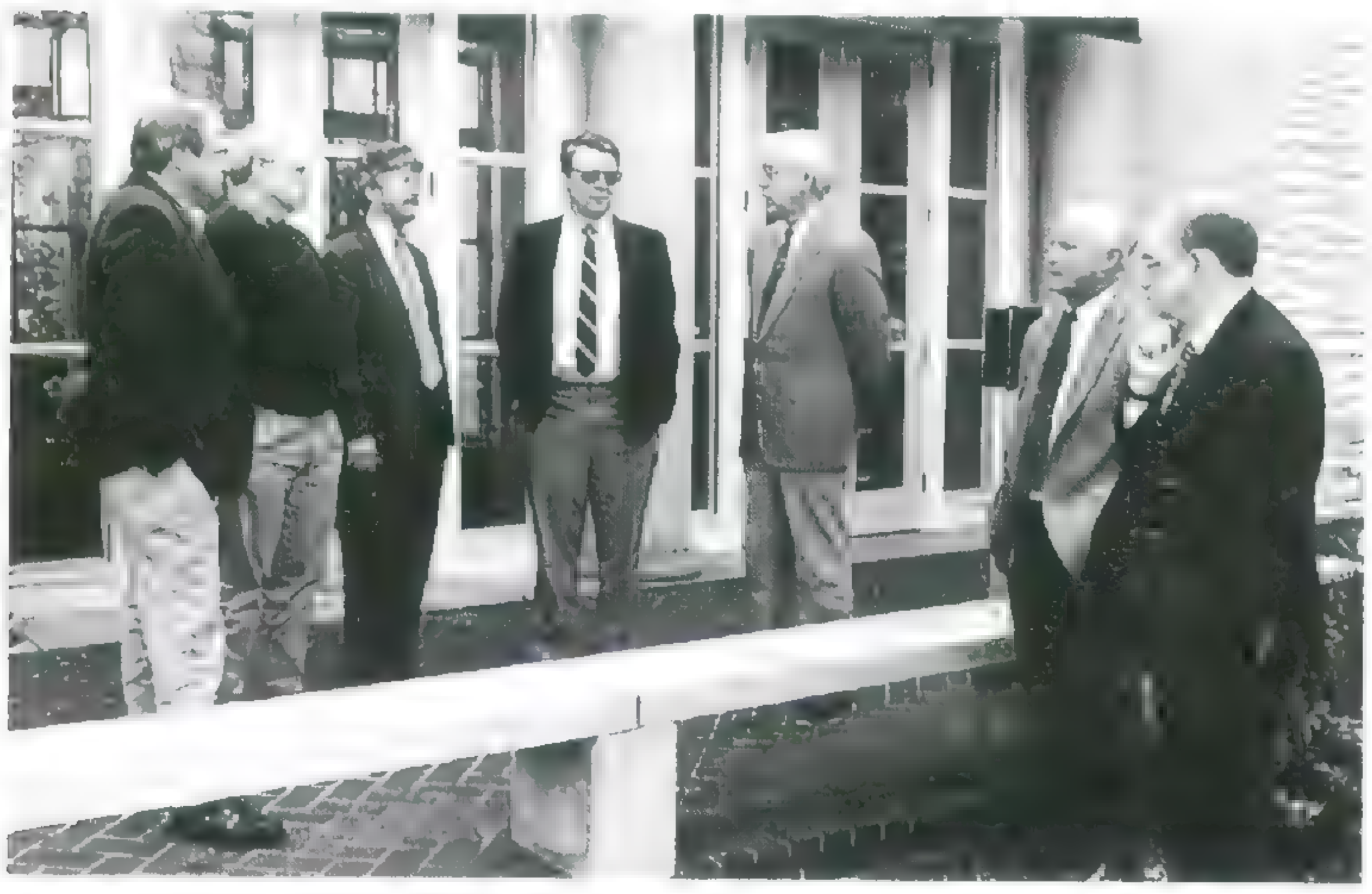
Presenting the sword of Ignatius Loyola to Peter Raven are J. Joseph Adorjan (left) and The Reverend Lawrence Biondi, S.J., president of the University.

St. Louis University Awards Raven Highest Honor

The Sword of Ignatius Loyola, the highest honor bestowed by St. Louis University, was presented to Dr. Peter H. Raven at the DuBourg Society Dinner on November 5, 1994. Past recipients of the sword include Harry Truman, Katherine Dunham, Jacques Cousteau, Archbishop John May, and Roy Wilkins.

Dr. Raven was honored as one of St. Louis's most distinguished and noted scholars. In addition to his work as director of the Garden, Raven is the Engelmann Professor of Botany at Washington University and an adjunct member of the St. Louis University Department of Biology. He is recognized throughout the world for his work to create sustainable agriculture and forestry in the tropics, his preservation efforts for plants and animals, and for his commitment to developing the Garden into an international center for education and research

In presenting the sword, J. Joseph Adorjan, chairman of the St. Louis University Board of Trustees, said, "[Peter Raven's] restless pursuit of inquiry, his devotion to the discovery and celebration of life, and his unceasing dedication to the Missouri Botanical Garden have inspired thousands of students and citizens to find the beauty and tenderness of life in all of nature."



BIOSIS Meeting at the Garden — On October 29-30, 1994, the Garden hosted a meeting of the Board of Trustees of Biological Abstracts, a non-profit organization headquartered in Philadelphia that produces BIOSIS, the world's largest and most comprehensive bibliographic database of biology. Jesse M. Greenman, an early curator of the Garden's herbarium, was involved with the organization's founding over 75 years ago, and Garden director Frits Went was a board member in the 1960s. During a break in the meetings, board members (from left) Larry Meiller, James Reichman, Marshall Crosby of MBG (treasurer), John Anderson (president), William Bossert (chairman), David Cobb, and Michael Dadd (managing director of the organization's British subsidiary) chatted outside the Garden's Spink Pavilion.

TRIBUTES

SEPTEMBER 1994

Due to a changeover in the Garden's computer system, tribute gifts received during October 1994 will be published in the March/April Bulletin, *together with tributes from November and December 1994. — Editor*

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A Very Special Opportunity for Members, Friends, and Families

Follow the Yellow Brick Road!

There's no place like home...and now you can follow the Yellow Brick Road to the William T. Kemper Center for Home Gardening. Honor your family and friends by etching your names on a brick placed in the new entry path to the Kemper Center. The path will lead to an Emerald City of 24 backyard-sized outdoor demonstration gardens, a dream come true for home gardeners. Millions of future visitors will follow this path, welcomed by you and your loved ones.

Giving a brick for the Yellow Brick Road is a wonderful project for organizations, families, or groups of friends, as well as for individuals. In today's ever-changing world, the Yellow Brick Road is a lasting tribute.

A limited number of bricks are available, so place your order today! Bricks are $300 each, which can be paid in charge card installments of as little as $50. "Signature bricks" that reproduce your actual handwritten signature are available for $1,000. For more information, please call the Development Office, (314) 577-9517.

Relive the magic! A complimentary copy of The Wizard of Oz *will be reserved for you with each brick you order.*

Be a part of something you can always come home to...

THERE'S NO PLACE LIKE HOME!

Missouri Botanical Garden BULLETIN (ISSN 0026-6507)
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Missouri Botanical Garden

MARCH /APRIL
1995

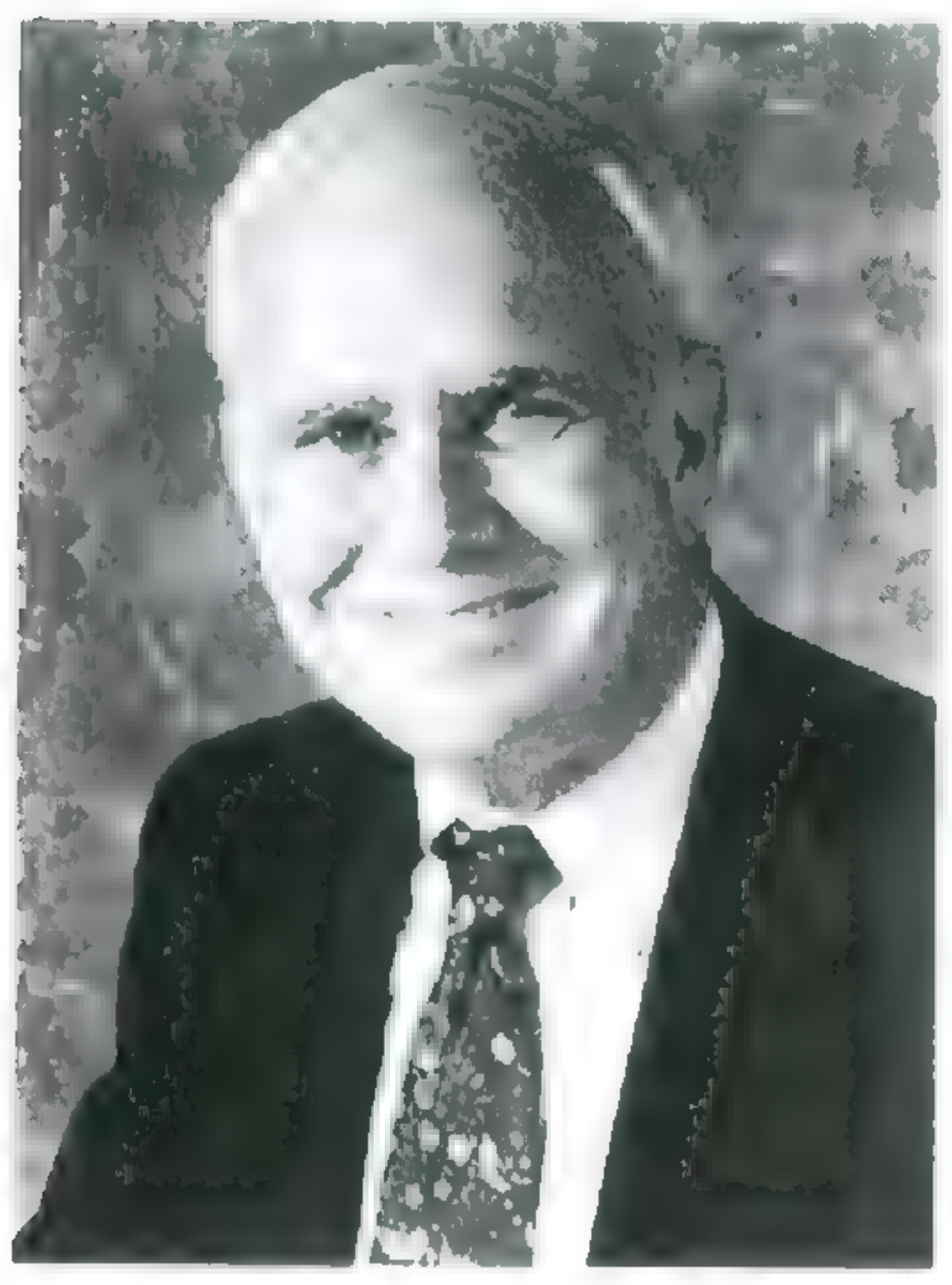
VOLUME LXXXIII
NUMBER TWO

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS AND THEIR ENVIRONMENT, IN ORDER TO PRESERVE AND ENRICH LIFE."

Springtime is always special at the Garden, and this year several new features are on view. Renovations to the English Woodland Garden are complete, and I hope each of you will have the opportunity to walk through this lovely area as the dogwoods come into flower. We have substantially enlarged the area with charming new habitats including a stream, pond, and a bog, and planted thousands of new plants to make this a truly comprehensive display of woodland species. Please see the full account of the renovations on page 6.

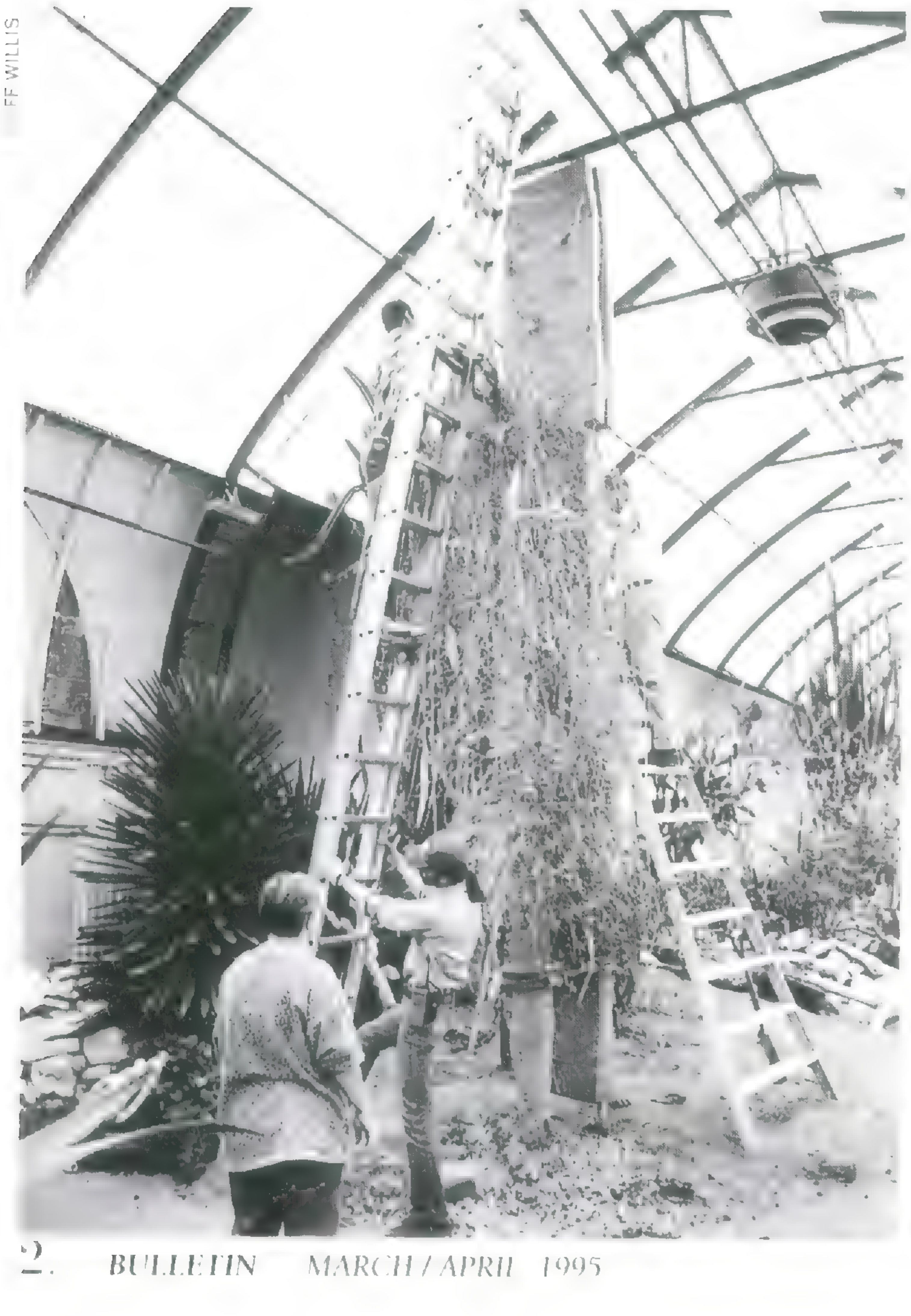
The Partnership Campaign continues to approach its goal; as this issue goes to press we have achieved $21 million, or 68 percent of our minimum goal. As part of the capital campaign, I am very happy to announce that the Chinese Garden has been donated by Margaret Grigg Oberheide, a longtime Garden Trustee and friend. Through her generosity this magnificent new feature will be finished this year (see page 4). Union Electric has donated the Groundcover Borders demonstration garden (page 7), leaving only three of the new demonstration gardens planned for the William T. Kemper Center for Home Gardening available for donors.



We are also delighted to announce that a major bronze sculpture by the renowned 20th century sculptor Jacques Lipchitz has been installed at the Garden, given in memory of William A. Bernoudy by the late Gertrude T. Bernoudy. You can see this beautiful piece on the path just south of the Climatron (see page 5). In addition, Mary Hall has generosly donated her exquisite sculpture *The Three Graces* to the Garden in memory of her husband Dr. Thomas S. Hall, our late Trustee (see page 17).

The generosity of our donors is a constant source of gratitude and pride to all of us who care about the Garden. I would like to take this opportunity to thank you for your continuing support and to encourage you to visit often this spring to enjoy the beauty of the Garden. Be sure to attend the magnificent *Rare Beauty* exhibit described on page 3, and the exciting new Gardeners' Fair in April.

— *Peter H. Raven, Director*



FF WILLIS

Moving Day

In late January the large specimen plants were removed from the Desert House, which has been closed in preparation for demolition. Shown at left, Garden horticulturists, volunteers, and members of the Henry Shaw Cactus Society worked together to save a large boojum, *Fouquieria (Idria) columnaris*, a valuable specimen from Baja California. The enormous plant was strapped to a padded ladder before being lowered with ropes and removed to the greenhouse, where it will be stored temporarily before being shipped to another facility for boarding. The boojum and many of the Garden's other rare and valuable desert plants will return to the Garden when funds have been raised to build a new Desert House. The old Desert House, which was built in 1913, had deteriorated in spite of regular maintenance to the point where the plants were threatened and it was no longer financially possible to keep the building open. Shown removing the boojum are (from left) Pat Thomann, president of the Henry Shaw Cactus Society; Steve Feiner, horticultural volunteer (on ladder); and Tim Lyons, Desert House gardener.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this *Bulletin* and mail to:

Name:

Old Address:

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City

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New Address:

Date effective:

Street

City

State Zip

On the Cover

In springtime the Mausoleum Garden is carpeted with blossoms.

Photo by King Schoenfeld

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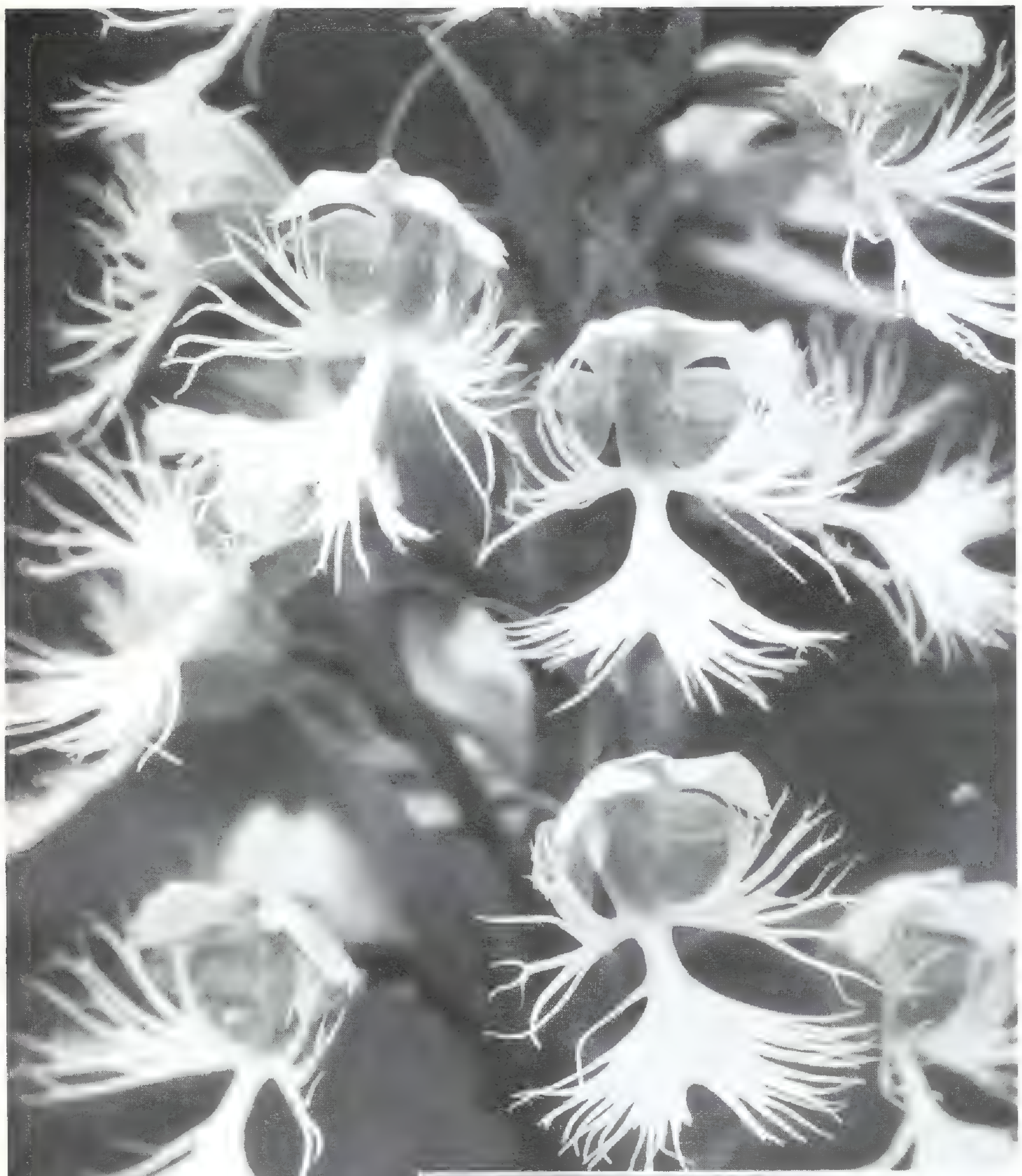
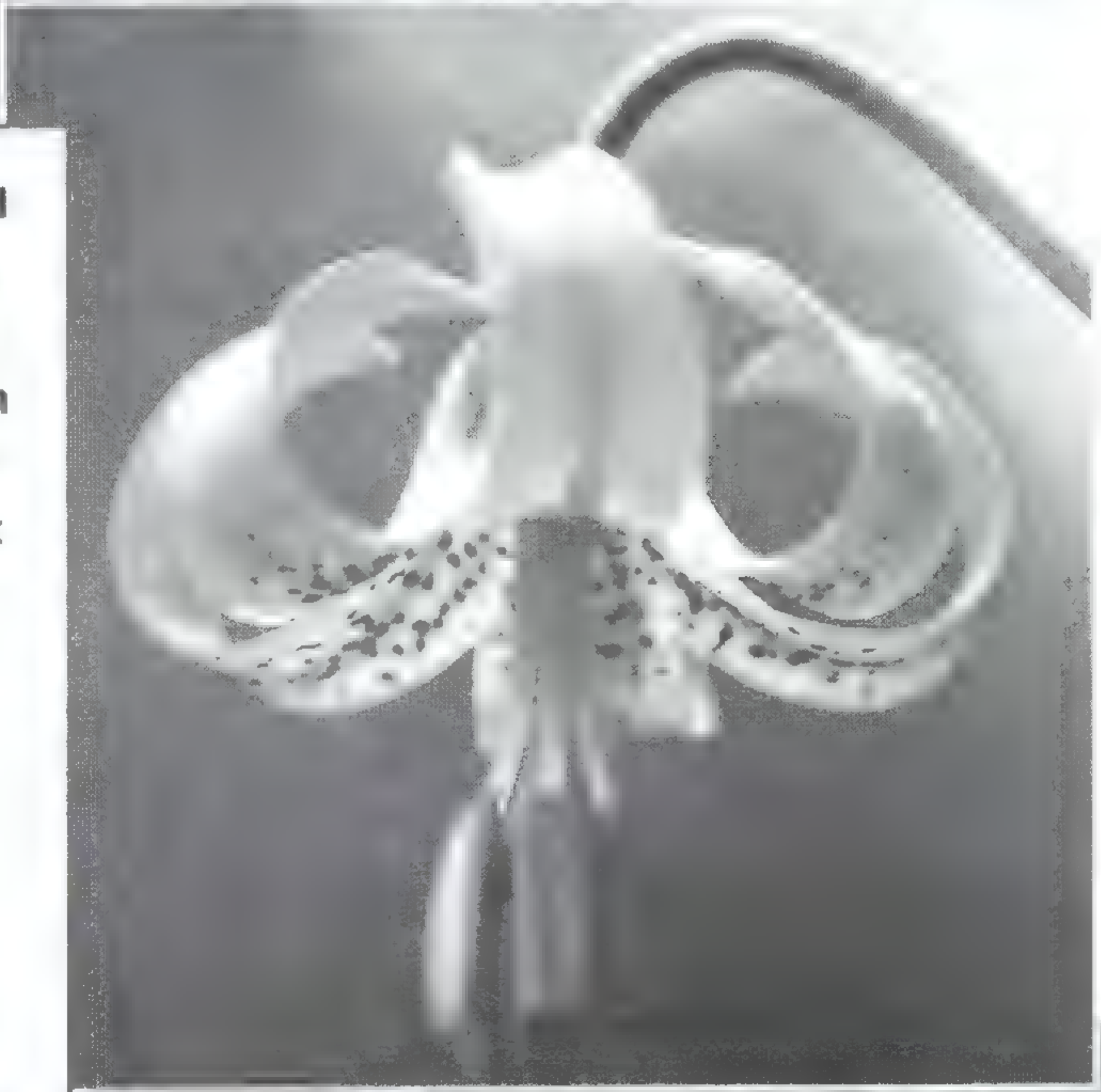
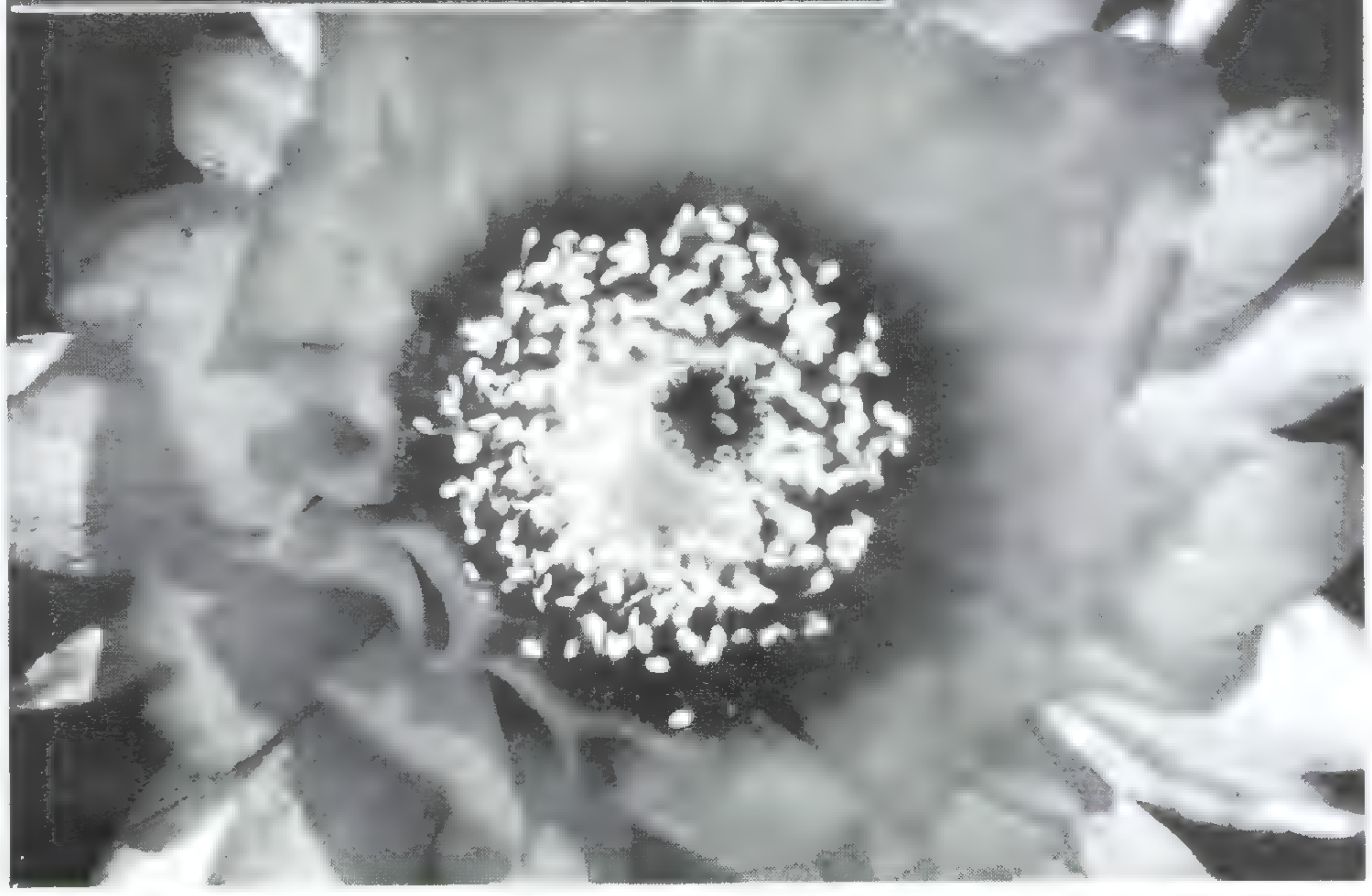
PHOTOGRAPHS BY MARYL







Above: Western prairie fringed orchid, *Platanthera praeclara,* grows on a stem as high as four feet tall. Once common in the midwest, over 60 percent of its wild population was lost when the prairie was cultivated for agriculture and grazing. Right, center: Western lily, *Lilium occidentale,* is found in southern Oregon and North Carolina. This exquisite wild lily stands out like a brilliant red flag in its moist grassland habitat. The species is threatened by development, agriculture, and overcollecting. Right: Black lace cactus, *Echinocereus reichenbachii* var. *albertii,* is found only in Texas. Named for the lace-like pattern of its spines, this spectacular cactus was historically found from Kansas to Mexico. Its natural habitat has been lost to road building, development, and grazing.

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GARDEN LIBRARY

Rare BEAUTY

America's Endangered Plants

March 1 — April 21, 1995
Monsanto Hall, Ridgway Center

RARE AND ENDANGERED PLANTS have a special fascination for us, with their unique characteristics and their tenuous hold on survival. They live on the edge of extinction, often existing in only a few places or in very small numbers.

This spring the Garden hosts *Rare Beauty: America's Endangered Plants*, the first exhibit of its kind in the United States. This stunning collection of color photographs presents 35 species of endangered plants in full bloom. The plants represent biological and geographic diversity and were selected for their beauty, interest and importance.

The exhibit was curated in consultation with some of the country's leading botanists at the Center for Plant Conservation, the Smithsonian Botany Department, The Nature Conservancy, and the U.S. Fish & Wildlife Service. Support was provided by the National Fish & Wildlife Foundation and the New England Wildflower Society.

Astonishingly, all of the pictures in the exhibit were made between April and October 1992. When the project was commissioned in the spring of 1992, nature photographer Maryl C. Levine immediately began crisscrossing the country, driving, flying, hiking, and sometimes wading to the specific sites where the plants were to be found at the peak of their blooming season. More than 30 botanists around the country helped her to locate the plants, often in very rugged terrain.

"This exhibit may be the only opportunity most visitors will ever have to see any of these plants," said Ms. Levine. "I hope it helps people to gain an understanding about the fragility of these species, the threats to their survival, and the efforts being made to protect them."

Rare Beauty premiered at the Houston Museum of Natural Science from April through August, 1993, where it was seen by more than a million visitors. It will be on display in Monsanto Hall, accompanied by exhibits of the Center for Plant Conservation and its collection of plants here at the Garden.

Margaret Grigg Oberheide Donates Chinese Garden

THE BOARD OF TRUSTEES paid tribute at their annual meeting to Margaret Grigg Oberheide, who has generously donated the funds for the new Chinese Garden. Mrs. Oberheide, a Garden Trustee since 1984, has made the gift in memory of her parents, Mr. and Mrs. Robert Lewis Blanke. It will be known as the Margaret Blanke Grigg Chinese Garden.

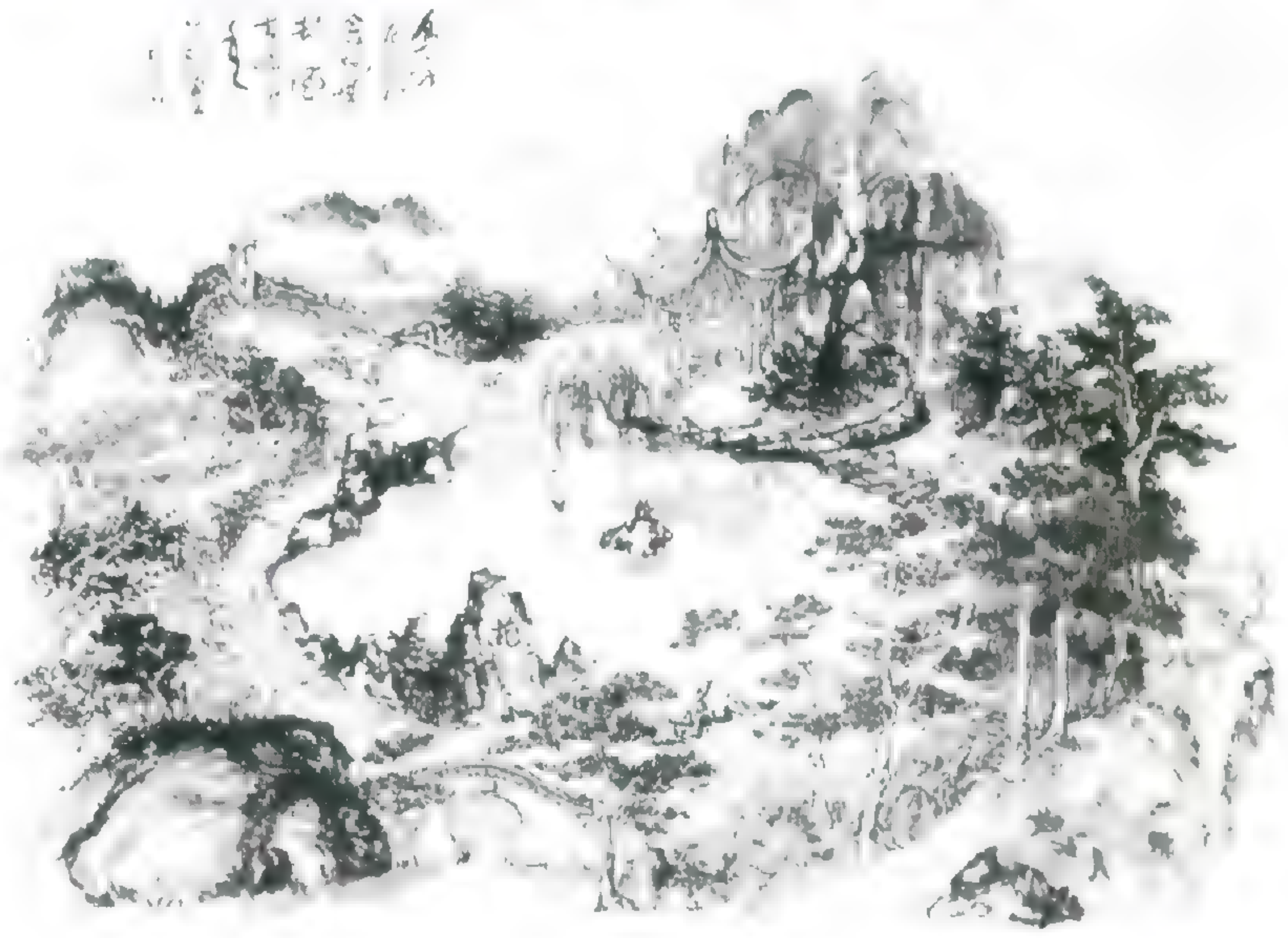
Construction of the Chinese Garden is underway adjacent to the new demonstration gardens, just north of the new Boxwood Garden. The Chinese Garden will commemorate the fifteen-year sister city relationship between St. Louis and Nanjing, China. Central features of the garden are a naturalistic pool with an overlook, a traditional pavilion, a marble bridge, a moon gate, inlaid stone paving, and monumental stones. Early this summer craftsmen from China will arrive at the Garden to erect the pavilion and bridge and complete other ornamental details in the garden. Horticultural planting is scheduled to be complete by late fall. The pavilion and stone bridge are gifts to St. Louis from the people of Nanjing.

In return for the pavilion and bridge, the City of St. Louis and the Garden have given a Friendship Playground for Xuan Wu Hu Lake Park in Nanjing. The playground was dedicated last fall, and the equipment will be assembled this summer.

Mrs. Oberheide has been a very special friend to the Garden and to other cultural institutions in St. Louis for many years. The main entry hall in the Ridgway Center was given in memory of her late husband, Hamblett Charles Grigg. With the gift of the Chinese Garden, she has given a treasure that all St. Louisans will cherish for many years to come.

Mrs. Oberheide said, "My father was an avid gardener and spent many happy hours visiting the Missouri Botanical Garden. Both he and my mother loved flowers and gardening very much. I am donating this Chinese Garden in their memory."

Left: Mrs. Oberheide and John Wallace with an artist's rendering of the new Chinese Garden, below.



Board of Trustees' Annual Meeting

AT THE MEETING of the Garden's Board of Trustees on January 18, 1995, John K. Wallace, Jr. was elected to a second term as president. Also elected were William H. T. Bush, first vice president, and David W. Kemper, second vice president. Other officers are Michael S. Olson , secretary; Cheryl B. Mill, assistant secretary; and Frank P. Wolff, Jr., counsel.

Douglas B. MacCarthy was elected to the Board for a four-year term. The Hon. Carol E. Jackson and Honorary Trustee Prof. Philippe Morat were reelected to four-year terms.

Shown at the Trustees' annual meeting (from left): Peter Raven, John Wallace, Bucky Bush, David Kemper.

James S. McDonnell III Is Honored

The Board of Trustees honored James S. McDonnell III, who is leaving the Board after twelve years of service as a Garden Trustee. Mr. Wallace said, "Jim's wonderful support and involvement has been especially helpful and enormously generous in our fund raising pursuits. He graciously donated significantly to the Flora of China project and to the Partnership Campaign, and on behalf of the Board I would like to express our genuine appreciation for his wonderful commitment to this institution."

Mr. McDonnell's service on the Board of Trustees began in 1983. He provided leadership and guidance in strengthening the financial stability of the Garden during his tenure on the Finance Committee from 1990 through 1994, and his magnificant support through the James S. McDonnell Foundation has advanced important development and scientific education projects including the William T. Kemper Center for Home Gardening, the Flora of China project, and the Partnership Campaign.

The Garden joins the Board of Trustees in honoring Mr. McDonnell's distinguished civic and philanthropic career. We are deeply grateful for his outstanding service to the Garden.

James McDonnell, center, with John Wallace and Peter Raven.

Lipchitz Sculpture Comes to the Garden

A BEQUEST by the late Mrs. Gertrude T. Bernoudy in memory of her husband William A. Bernoudy has made it possible to display a magnificent new sculpture by Jacques Lipchitz at the Garden. Installed in January across from the old Desert House, the large bronze relief depicts the mythological winged horse Pegasus. The sculpture stood in the garden at the Bernoudy's St. Louis home for many years.

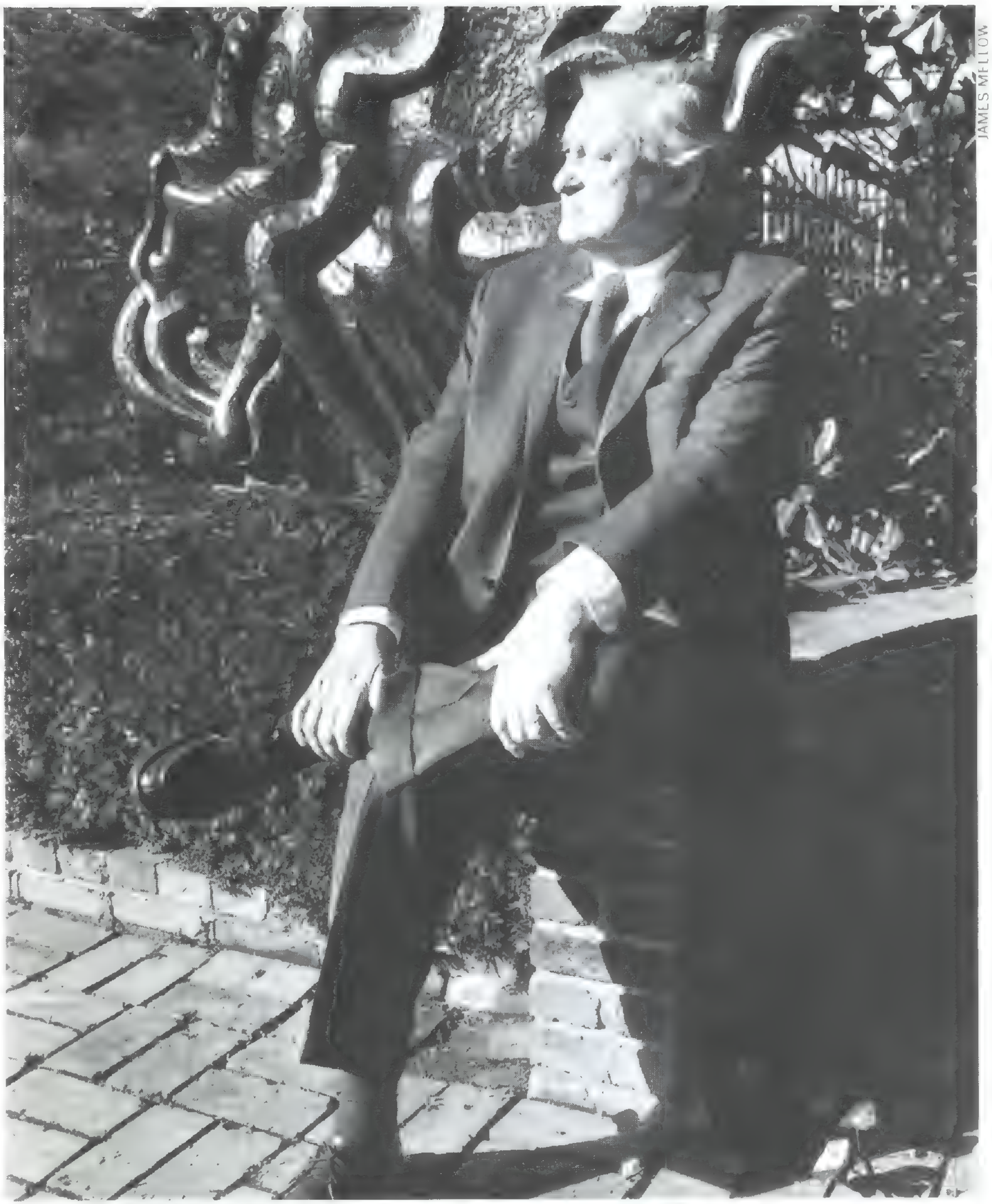
Chaim Jacob Lipchitz, 1891-1973, was born in Lithuania and came of age in Paris during the early 20th century, where he active in the avante-garde community of Picasso, Modigliani, Rivera, Soutine, and Gris. Art historian H. H. Arnasson, who ranked Lipchitz with Picasso and Chagall, wrote, "Lipchitz, as a pure sculptor, is...unquestionably one of the greatest sculptors of this century."

Lipchitz' work is familiar to St. Louisans; his monumental 1927 bronze *Joie de Vivre* (a gift of Mrs. Mark C. Steinberg) is displayed at the Steinberg Skating Rink in Forest Park. The St. Louis Art Museum loaned two of Lipchitz' works, the 1923-25 *Large Bather* (gift of Morton D. May) and the 1926-30 *Figure* (gift of Mr. and Mrs. Joseph Pulitzer) to the St. Louis Bicentennial Sculpture Exhibition at the Garden in 1965. The exhibition also included a 1940 Lipchitz' *Mother and Child* from an anonymous donor. The 1926-30 *Figure* was displayed at the Garden again for the Spring Sculpture Festival in 1972.

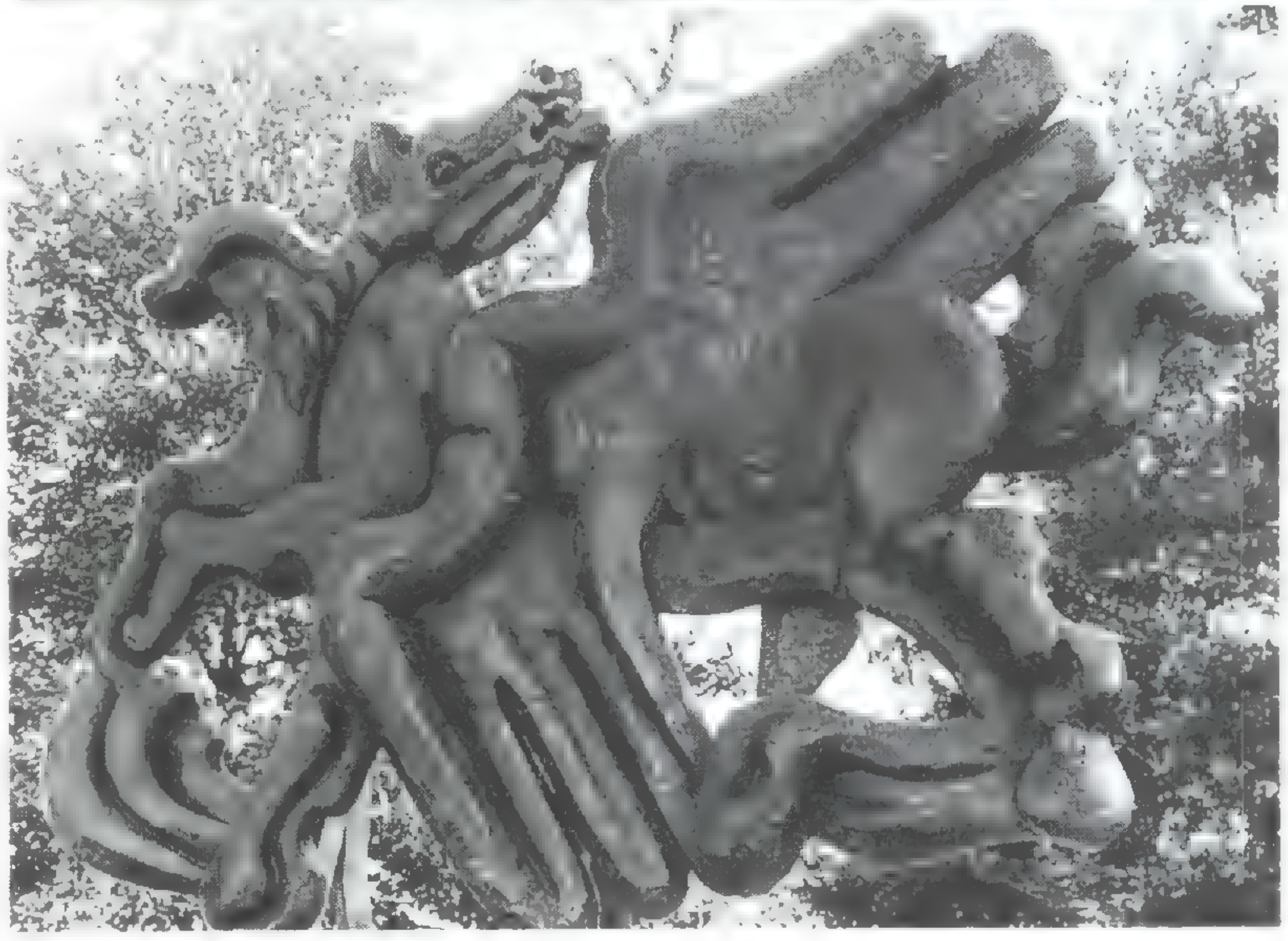
The Bernoudy sculpture is based on designs Lipchitz created during the 1940s. The architect Philip Johnson asked Lipchitz to make a wall sculpture to be placed on the brick chimney over a fireplace of a guest house owned by Mrs. John D. Rockefeller III on West 53rd Street in New York. Lipchitz decided to develop the piece from his Pegasus designs and call it *Birth of the Muses* in honor of the Rockefellers' interest in the arts. In 1950 he completed the work as a bronze relief five feet high. It was installed as planned and later was acquired by Lincoln Center. The Bernoudy sculpture is similar in design to the Rockefeller piece.

Lipchitz' interpretation of the theme took some artistic license with Greek mythology. The sculptor conceived of Pegasus striking his hoofs on a rock on Mount Olympus, and the muses being born in four springs that emerged from that contact. In the original legend, Pegasus stamped a hoof on Mount Helicon in Boeotia, making the Hippocrene Spring, where the already born nine muses, daughters of Zeus and Mnemosyne, goddess of memory, disported themselves in their sacred grove around the spring.

— From material prepared by George McCue



JAMES MELLOW



CLIFF WILLIS

Top: Jacques Lipchitz sits in front of his sculpture at the Bernoudy home. St. Louisan James Mellow photographed Lipchitz shortly after breakfast one morning in the early 1960s when the sculptor was visiting St. Louis. "At this time in my life I have more commissions than I have ever had," the 71-year-old Lipchitz told the photographer. "Isn't it too bad I didn't have them sooner?" Lipchitz lived to the age of 82, renowned as one of the leading sculptors of the 20th century.
Below: The Bernoudy sculpture was installed at the Garden in January. A relief, meant to be viewed from the front, it is placed in front of a group of hollies just past the Climatron, on the east side of the path. A low wall encloses the area, and the sculpture stands on a high mounting that will be concealed by a hedge.

THE ENGLISH WOODLAND GARDEN GROWS UP

IN 1976 the English Woodland Garden was dedicated as the Garden's Bicentennial project. It quickly became a favorite feature for amateur and professional gardeners alike, with its emphasis on naturalistic plantings of a wide variety of native and exotic trees, shrubs, vines, herbaceous perennials, groundcovers, bulbs, annuals, and primitive plants combined in rich profusion in a quiet, shady setting. During 1994, with support from the Partnership Campaign, an ambitious expansion and renovation program was carried out in the area.

The Woodland Garden was expanded to facilitate growing a wider range of species. The upgrades include an underground automated irrigation system and construction of new bog, stream, and pool habitats. Many of the rustic paths of chipped bark have been retained, and a paved all-season path was added to facilitate access for all visitors.

New plantings in the bog area include carnivorous sundews and pitcher plants, giant lily, rushes and sedges, irises, Chinese water pine, and the rare *Lindera mellisifolia*. The edges of the new pool are planted with willows, birches, red stem dogwood, and cattails.

The new stream, lined with boulders of Missouri stone, flows from the newly constructed pool in the northeast corner of the Woodland Garden. Low limestone bridges span the brook to allow visitors to follow the winding path and view the delightful streamside plantings of primroses, ferns, monkey flowers, hardy ground orchids, and clubmosses.

After almost twenty years, even the best kept gardens need some maintenance. Certified arborists in the horticulture division pruned the trees in the woodland, removing all dead, diseased, or crossed and rubbing branches. Many black locusts, originally used in the 1970s as "nurse trees" to help fix nitrogen in the soil and create essential shade, were removed. This will allow the maturing understory plants access to the additional sunlight needed at this stage of their development.

Members of the genus *Hosta* had spread to cover large areas of the woodland, smothering less vigorous species in the process. The horticulture staff evaluated all of the hostas, rigorously thinned the approximately 10,000 plants, and left only those of greatest rarity and value. The rest of the hostas, including many showy cultivars, were sold, and the proceeds were used to purchase new plants. Some of these are climbing hydrangeas, trilliums, mayapples,

Far left, top: The new stone entrance to the English Woodland Garden. Far left, bottom: A winding path leads visitors across the new stream. Center: Dogwoods in bloom are a highlight of the Woodland Garden in springtime. This page: Hundreds of shade-loving plants have been added to the display.

bluebells, bear's breech, bugbane, soapwort, and toadlily.

Originally the entire English Woodland Garden had a fairly dense cover of mature trees. In the past 20 years several trees have died out, creating openings where sun-loving species were planted. These have been removed and replaced with more appropriate shade-tolerant plants such as rhododendrons, Alabama snow wreath, hardy camellias, Oregon grape, and fothergilla.

Nearly 6,000 bulbs, an additional 2,500 flowering plants, and 33 species of primitive spore-bearing plants have been added to the English Woodland Garden. And due to the efforts of Garden curator Dr. James Solomon and the Midwest Plant Consortium, 52 species from the woodlands of the Vladivostok area of the Russian Far East and the Altai region of Siberia may be seen in the West for the first time. These include bellflowers, a new blue and white columbine, a grass adapted to woodland conditions, and a new birch with charcoal exfoliating bark.

The English Woodland Garden has been supported in part for many years by family and friends in memory of Adelaide LaBeaume Cherbonnier and Edward G. Cherbonnier. The new stone entrances to the English Woodland Garden are inscribed in their memory.

— *Boyce Tankersley, Horticulture Manager*

NEW DEMONSTRATION GARDEN

Union Electric Sponsors the Groundcover Borders Garden

A GENEROUS GIFT from Union Electric Company to the Garden's Partnership Campaign will fund a new exhibit to demonstrate energy conservation through use of landscaping. The Groundcover Borders Garden is one of 24 residentially scaled demonstration areas currently under construction at the William T. Kemper Center for Home Gardening.

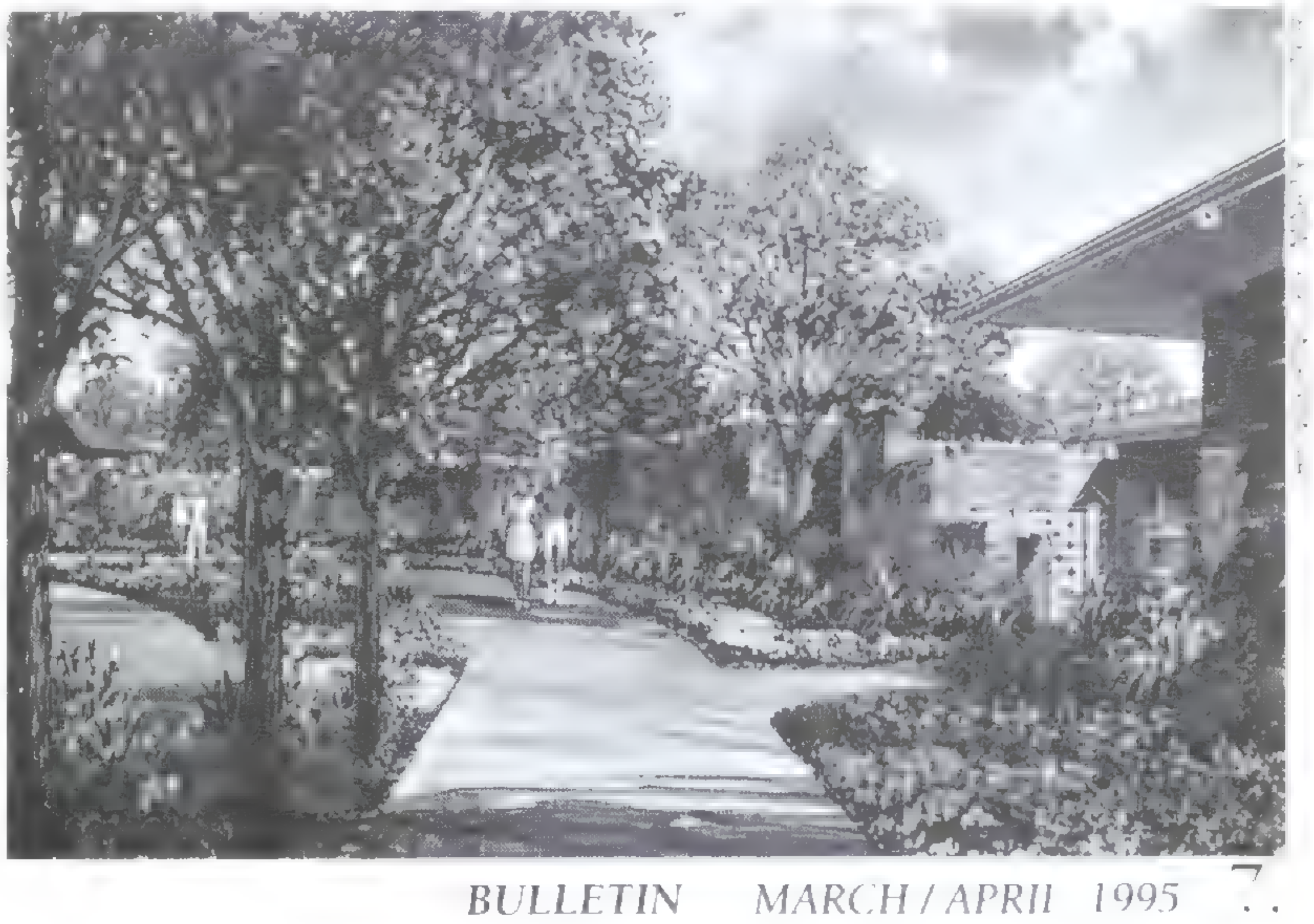
The new Groundcover Borders Garden will feature a comprehensive collection of plants, from those that prefer sunlight, such as leadwort and fragrant sumac, to those with colorful flowers such as creeping phlox, to shade-loving species such as wild ginger, epimediums, and Christmas ferns. Exhibits inside the Kemper Center will illustrate how to construct a landscape plan and select plants that will improve energy efficiency.

Union Electric is committed to support for both education and environmental concerns. The company funds the Community Beautification Awards, a feature of Black History Month at the Garden that recognizes African-Americans who make significant contributions to local beautification projects. UE has also contributed to the restoration of the Climatron, construction of the Ridgway Center, and the Japanese Garden.

Since 1989 UE has supported a number of community gardening programs through its GreenLeaf program, providing grants to local groups for planting trees, gardens and landscaping to promote energy conservation and cleaner air. The company plans to award GreenLeaf grants totaling $100,000 to non-profit organizations in 1995. In addition, Union Electric employees are active in environmental projects ranging from cleaning up the Lake of the Ozarks shoreline to increasing habitat for wildlife.

The Garden appreciates the assistance it has received from Eddie G. Davis, president of the St. Louis Board of Education and an *ex officio* Trustee of the Garden, who is Minority Business Developer for Union Electric, and Charles W. Mueller, president and chief executive officer. Peter H. Raven said, "We are very grateful for Union Electric's participation in the Partnership Campaign, and we look forward to working with them on projects to educate the public about energy conservation."

An artist's rendering of the Groundcover Borders Garden



Creating a Lasting Memory

Lasting tributes to those we love can take many forms: a photograph album passed down for generations; a grandmother's handwritten recipes; a beloved oak tree planted in the yard. The Partnership Campaign offers some wonderful ways to honor and remember the very special people in our lives for generations yet to come. Gift opportunities range from the modest to the magnificent, but every gift will become part of the future of the Garden and a priceless memory.

The Yellow Brick Road

A Very Special Opportunity for Members, Friends, and Families

For as little as $50, your name will be added to the list of donors to the Partnership Campaign and permanently displayed inside the William T. Kemper Center for Home Gardening.

For $300, a name of your choice will be etched on a brick placed in the new entry court at the Kemper Center. The entrance courtyard leads to an Emerald City of 24 outdoor demonstration gardens. Bricks may be given by a group and paid in installments of as little as $50.

For $1,000, a brick reproducing your handwritten signature will be added to the entry court.

Demonstration Gardens

Only three of the 24 demonstration gardens are still available for naming gifts.

The Fruit Garden Located along the main walk, this garden will display a wide variety of fruit-bearing plants suitable for home gardens in the St. Louis area. From delicate spring blossoms to the brilliant colors of autumn harvest, the fruit garden will be a feast for all the senses. Curvilinear planting beds will demonstrate alternative techniques for growing strawberries, blackberries, raspberries, and more. An arc of fruit trees will contain modern and antique cultivars grown on different root stocks for comparison.

The Azalea-Rhododendron Garden was made possible by a bequest from Eyvonne Huch.

The Ornamental Shade Garden The main tram path past the Kemper Center will be planted with drifts of hostas, ferns, astilbes, and anemones beneath flowering trees. The Shade Garden will feature small trees, shrubs, and perennials chosen for their ornamental beauty, tolerance for shade, and suitability for the home landscape. To the west, the Shade Garden will have a trellis with climbing roses and an overlook with a panoramic view across the Kemper Center gardens.

The Summer Plant House A latticed cedar conservatory will offer a delightful setting for summering house plants outdoors. It will be filled with lush begonias, orchids, foliage, and hanging baskets of the best flowering varieties for St. Louis, plus a workbench, sink, and a bed for sunken potted plants. The summerhouse will be a cool place to sit in the shade and enjoy demonstrations on repotting, pruning, flower arranging, container gardening, bonsai, and other gardening techniques.

The New Research Building

One day the vacant lots at the corner of Shaw and Vandeventer will be the site of a new headquarters of the Garden's world-renowned research program and an anchor for the burgeoning biotechnology industry in St. Louis. The increasing scope of the Garden's program, plus the growth of the priceless herbarium and library, has created an urgent need for more space. Designed to be energy efficient and environmentally friendly, the new building will be a revitalizing force for the Shaw neighborhood.

A significant naming gift is being sought for the Research Building. On a smaller scale, there are many opportunities for gifts within the new facility, including special rooms and facilities, library features, herbarium collections, and more.

The shoreline of the lake in the Japanese Garden was preserved with support from bequests.

The Best Way to Make a Gift

A charitable gift can benefit you and your family as well as the Garden, depending on the method of giving that you choose.

Outright Gifts

Cash donations offer an immediate charitable income tax deduction up to 50 percent of your adjusted gross income. This is the simplest gift option, perfect for donating to the Yellow Brick Road.

Appreciated property Gifts of stocks, bonds, real estate, mutual funds, and more can be deducted at fair market value if you have held them longer than 12 months. You avoid capital gains tax, and you can deduct amounts up to 30 percent of your adjusted gross income. This is a good choice for larger gifts.

As an additional benefit, excess deductions from gifts of either cash or appreciated property can be carried forward into five additional tax years.

Special Life Income Plans

These types of gifts offer additional benefits to you:

- **Receive an income for life**
- **Receive an immediate tax deduction**
- **Avoid capital gains tax**
- **Save on estate and inheritance taxes**
- **Save taxes by donating a personal residence or farm while you continue to live in or use the property for the rest of your life.**

Free, Expert Help

The Garden makes expert gift planning assistance available free of cost or obligation to its members. Please call the Development Office at (314) 577-5120 or (314) 577-9532 for more information about gift planning opportunities.

Home Gardening

GARDENING FOR THE BIRDS

MOST PEOPLE who visit the Garden in the spring focus on the colorful display of flowers. There are those of us, however, who also cast our glances into dense thickets of shrubs and up to the crowns of trees. It's not spring flowers we are looking for, but other signs of the changing seasons. After a winter of mostly sparrows, finches and titmice, the spring brings bright warblers and rusty thrushes, vireos and olive-colored flycatchers and a glittering gem, the ruby-throated hummingbird, to name just a few.

Many people don't realize that the Missouri Botanical Garden and neighboring Tower Grove Park provide excellent habitat for birds and are among the best spots in the city for viewing a large variety of avian species. Although one might attribute the diversity of bird life to the size of the Garden, there is a lot you can do to attract an array of bird species and add an appealing new dimension to your own garden even if your yard is very small.

Landscaping

Planting for wildlife doesn't mean you can't have a beautiful garden. Many of the plants that will be attractive to birds will also add beauty to your landscape. When planting for birds you should plant a mix of flowers, shrubs and trees to supply birds with the food, cover and nesting sites they need. You should also be sure to include a water source in your garden. This can be as simple as a bird bath or as elaborate as a dramatic water feature. If you do include a pond in your garden you need to be sure that birds have a shallow access point for drinking or bathing.

Birds depend on a variety of foods. Cardinals, sparrows and finches are mostly seedeaters. Robins and mocking birds eat insects and berries. Warblers, vireos and flycatchers eat insects, while hummingbirds mostly sip nectar. Below are some plants especially suited to the St. Louis area.

Seeds

For the seedeaters you might consider trees such as the tulip poplar, *Liriodendron tulipifera*, or a member of the birch family, *Betula* spp., which provide seeds well into the winter. There are also many flowers, both annuals and perennials, that you can plant as a source of food for the seedeaters. These include sunflowers, coreopsis, cosmos, gloriosa daisies, columbines, black-eyed Susans, purple coneflowers and the asters. Frequently gardeners will remove spent flowers to promote further blooming, but you may want to allow a few plants to go to seed for the birds. There are also a number of handsome ornamental grasses that provide seeds.

Berries

Small trees and shrubs such as the flowering and grey dogwood, *Cornus florida* and *C. racemosa*, produce berries that are avidly sought by fruit-eating birds. The former produces red fruit, the latter white. Another wonderful fruit-bearing tree is the Washington hawthorn, *Crataegus phaenopyrum*, whose attractive red berries are available throughout the winter. This species of hawthorn is fairly resistant to cedar-hawthorn rust, and their dense thorny branches provide good shelter and nesting for a variety of birds. Some berry-producing shrubs to consider are cotoneaster, *Cotoneaster* spp., coralberry, *Symphoricarpos orbiculatus*, bayberry, *Myrica pensylvanica*, firethorn, *Pyracantha* spp., and the large, spectacularly flowered elderberry, *Sambucus canadensis*. Several members of the holly family, *Ilex* spp., also bear fruit that birds eat. Remember when selecting hollies that only the female tree will produce berries and must be cross-pollinated by male plants, so you will need to plant at least one of each.

Insects

Birds such as brown thrashers, thrushes and sparrows scratch among the dead leaves on the ground looking for insects to eat. Leaving some of the leaf litter beneath your bushes and trees will give them an ideal place to feed as well as enriching the soil with the decomposing leaves.

Nectar

Making up for its small size by its brilliance is the ruby-throated hummingbird, the only species of hummingbird occurring regularly east of the Rockies. Hummingbirds often find their food in red, tubular flowers. This can make a garden planted with hummingbirds in mind a bright, cheerful place. In the spring, as they return north, they visit the flowers of the red buckeye, *Aesculus pavia*, a small tree with thin tubular flowers that bloom in April and May, and the lovely columbines, *Aquilegia canadensis*, which last into the early summer. In midsummer hummingbirds regularly feed at the dramatic cardinal flower, *Lobelia cardinalis*, a native species that takes well to a sunny spot in the garden. They also frequent the purple flowered butterfly bush, *Buddleia davidii*, and the morning glory vines, *Ipomoea* spp. A beautiful late summer hummingbird plant, which flowers until frost, is the pineapple sage, *Salvia elegans*. It grows quite tall and has beautiful red flowers that are worth the long wait.

You might also want to try the Mexican sunflower, *Tithonia rotundifolia*, an annual, which is attractive to butterflies as well as hummingbirds. Additional flowers to consider include the pale and spotted touch-me-nots, *Impatiens pallida* and *I. capensis*, which grow well from collected seeds in shady areas, and the trumpet honeysuckle, *Lonicera sempervirens*, which blooms from early May to frost.

For an extra nectar source or to insure views from a strategic location, you may also choose to hang a hummingbird feeder, which holds a sugar water mix. It is important, however, to change the mix regularly so it doesn't spoil.

Shelter

Another consideration when planning a garden for the birds is providing cover. Birds need both safe nesting sites in the summer and protection from the elements in the winter. Evergreens offer solutions for both these needs. Chinese junipers, *Juniperus chinensis*, are a good choice for this area. Unlike our native red cedars, *J. virginiana*, Chinese junipers are resistant to both cedar-apple and cedar-hawthorn rust. Not only do they offer good nesting sites and winter cover, they also provide food for the

DIRECTORY

Regional Plant Societies

The list below includes many of the plant societies that are active at the Missouri Botanical Garden. Names and telephone numbers for contact persons change frequently; please call the Kemper Center for Home Gardening at 577-9440 with changes, additions, or to obtain more information.

African Violet Council	*Ardath Miller*	394-9190
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Ellis Evans*	843-3767
East Central District Federated Garden Clubs of Missouri		
Gardeners of America (formerly Men's Garden Clubs of America)(Ozark Region)	*Russell McClellan*	837-2470
Gateway Chapter of the North American Rock Garden Society	*June Hutson*	577-9402
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Ikebana International		
Iris Society of Greater St. Louis	*Jim Loveland*	349-4977
Mid-America Regional Judging Committee of the American Orchid Society	*David Brown*	727-2385
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Carole Sebastian*	993-9270
Saintpaulia Society		
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Sue Reed*	965-6813
St. Louis Horticultural Society		
St. Louis Water Gardening Society		
West County Daylily Club	*Roy Bohrer*	240-8780

TELEPHONE HELP

The Garden has several telephone services available to assist you.

GardenLine 577-9400
24-hour recorded information about Garden events, hours, admission and directions. Outside area code 314, call **1-800-642-8842** toll free, 24 hours a day.

Horticultural Answer Service (314)577-5143
Monday through Friday, 9:00 a.m. to noon, Master Gardeners are on hand to answer your gardening questions.

Master Composter Hotline (314) 577-9555
9:00 a.m. to noon, Monday through Friday. Specially trained Master Gardeners are on hand to answer your questions about yard waste management techniques. After hours leave a message and your call will be returned. The Master Composter program is supported by the Monsanto Fund.

HortLine (314) 776-5522
24-hour recorded gardening information is available with a touch tone telephone. You will need a brochure listing the hundreds of HortLine topics in order to use the service; you may request a brochure by calling the Kemper Center for Home Gardening at (314) 577-9440, 10 a.m. to 4 p.m. daily, or send a stamped, self-addressed envelope to HortLine, Kemper Center for Home Gardening, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

birds. Other conifers including white pine, *Pinus strobis*, and blue spruce, *Picea glauca*, offer good protection as well.

A brush pile is another important feature, which offers protection to ground feeding birds and other animals. If you have the room in your yard, a well-made brush pile provides sanctuary from both the weather and predators. A good brush pile will have tunnels throughout so the birds have several entrances and exits and can move about easily within the brush.

As people have continued to develop this country we have dramatically altered the landscape. Natural habitats have been replaced by homes with sterile lawns, leaving many species of animals without the things they need for survival. By gardening for the birds we are helping to compensate for this displacement and in the process are adding to the appeal in our own backyards. This summer you too may find yourself mesmerized as a glittering gem hovers amid your flowers.

— Barbara Addelson,
Manager of Science Outreach

For more information, see *Birds of Missouri Botanical Garden and Tower Grove Park*, available in the Garden Gate Shop. This inexpensive book is a source of valuable information on the common birds to be found in St. Louis, especially in the neighborhood of the Garden. And this spring visit the Garden early on Wednesday and Saturday mornings, when the grounds open at 7:00 a.m. for walking. This is one of the best places to see birds in St. Louis, and you can have breakfast in the Gardenview Restaurant!

The William T. Kemper Center for Home Gardening is open 10 a.m. to 4 p.m. daily. Admission is free with regular Garden admission. For information on classes and activities at the Center, please call (314) 577-9440.

The Plant Doctor is available at the Kemper Center for walk-in consultations from 10 a.m. to noon and 1 to 3 p.m. Monday through Saturday.

Call HortLine for recorded gardening information 24 hours a day! For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

Calendar

MARCH/ APRIL 1995

march 1 wednesday

Rare Beauty: America's Endangered Species

9 a.m. to 5 p.m. daily, through April 21. Stunning color photographs show threatened and endangered plants at their peak of bloom. See page 3 for details. Regular Garden admission.

march 3 & 4

friday & saturday

Southside Youth Service Coalition Youth Fair

10 a.m. to 4 p.m., Orthwein Floral Display Hall. Representatives from more than 60 organizations are available to assist city youths and their families with jobs, summer camps, health issues, education and sports opportunities. Co-sponsored by the Southside Youth Service Coalition and the Garden. Free; admission to Garden grounds is not included.

march 15 wednesday

Lecture: "The Grand Saga of the Monarch Butterfly"

7:30 p.m., Shoenberg Auditorium. Dr. Lincoln P. Brower gives the fifth annual Jane and Whitney Harris Lecture of the International Center for Tropical Ecology of UM-St. Louis. Dr. Brower is internationally known for his work in ecology, evolution, animal behavior, and conservation biology. Admission: Lecture $5; lecture and reception following, $30. Please call 516-5219 for reservations and information.

march 17 friday

Lecture: "Linking Ethnobotany, Traditional Healing, and Biodiversity Conservation in the Rain Forests of Belize"

7:30 p.m., Shoenberg Auditorium. Dr. Michael Balick studies and documents traditional knowledge about plants to preserve it for future generations. He is the author of *Rainforest Remedies: One Hundred Healing Herbs of Belize*. Seating for the lecture is limited. Tickets are $2 for Garden members, $3 for non-members.

march 24 - 26

friday - sunday

International Symposium: Gardening with Iris Species

Presentations and exhibits by noted experts on the growing, taxonomy, and hybridizing of irises. Sponsored by the Garden, the Greater St. Louis Iris Society, the Species Iris Group of North America, and the Gateway Chapter of the American Rock Garden Society. Registration is $150 per person. Call (314) 677-8805 for more information.

april 9 sunday

China Day Celebration

11 a.m. to 4 p.m., Ridgway Center and grounds. The third annual celebration of Chinese culture at the Garden, a colorful introduction to Chinese music, arts and crafts, cuisine, and art. Free with Garden admission; additional fees for some activities.

april 21 - 23

friday - sunday

GardenExpo: Lawn & Garden 1995

9 a.m. to 5 p.m. daily. Three days of fabulous fun, facts, equipment and new ideas for home gardeners. **Featuring the Garden Gate Shop Spring Plant Sale** with 20% discount for members, plus tips and advice from Garden horticulture staff experts. See the back cover for details.

Members' Days

march 9 thursday

Container Gardening

10:30 a.m., Shoenberg Auditorium. Cindy Gilberg of Gilberg Perennial Farms proves that a plant doesn't have to grow in the ground to be beautiful. Join us for an exciting demonstration of innovative ways to grow your favorites in a variety of containers. Attendendance drawing. Reservations are not required; seating is on a first come, first served basis. Free, for members only.

april 26 wednesday

Landscaping with Native Plants

1 p.m., Shoenberg Auditorium. Get ready for spring with a slide lecture by Scott Woodbury, horticulturist at Shaw Arboretum. Scott, who helped to create the exquisite Whitmire Wildflower Garden at the Arboretum, is an expert on growing native wildflowers. Reservations are not required; seating is on a first come, first served basis. Free, for members only.

every day

Free Walking Tours

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a fascinating tour of the Garden. Free with regular admission.

wednesdays & saturdays

Garden Walkers' Breakfast

7 a.m., grounds. In cooperation with the American Heart Association, the grounds open early every Wednesday and Saturday morning to encourage fitness walking. Greenhouses open at 9 a.m. Breakfast is available for purchase in the Gardenview Restaurant, 7 to 10:30 a.m.

Les Petites Dames de Mode

Tower Grove House • April 22 — May 19, 1995

Step back into the glorious days of the Belle Epoque. Tower Grove House Auxiliary welcomes an exhibit of 40 miniature Victorian and Edwardian ladies dressed in elegant fashions by John Burbidge, former designer for Priscilla of Boston. Each lovely 29-inch mannequin is dressed in an authentic costume complete down to the last bead and button, from ball gowns to afternoon ensembles to bridal gowns. The exhibit, valued at over $250,000, has been featured in museum exhibits and national magazines. Visitors will be able to view all the exquisite detail on each costumed figures arranged on tables throughout Tower Grove House.

During the 18th century, dolls dressed by French couturiers were sent all over the world, and their arrival was eagerly awaited by elegant ladies anxious to be "au courant" with the latest fashions. Mr. Burbidge began to create his Petites Dames in 1978. He does not reproduce actual garments, but aims for what he, a contemporary designer, would have created in another time.

> *Light reflecting on jet, the froth of lace ruffles and pleated tulle, the shimmer of crystal and pearl, the languouous movement of ostrich in a passing breeze...*

Each costume begins with meticulously constructed foundation garments that determine the shape of the finished gown. Burbidge uses original fabrics, beads, lace, and trim from old gowns authentic to the period, sometimes blended with modern fabrics. He writes, "The sewing machine was in use during the latter half of the 19th century, so I do all straight seams by machine, while beading, trimming, and finishing are done by hand. Also, sleeves are set in by hand as the size of the armholes definitely rules out the use of a machine. Construction methods correspond as closely as possible to full scale garments, including boning on bodice seams, linings and interlinings, and the usual complement of hooks and eyes." Of the lavish trimmings applied to dresses of the period, Burbidge says, "Despite the extravagant quality, it was done with stunning effect, and many dresses were virtually works of art....Devoid of time's aging process, each gown has about it a freshness that all beautiful things once had when they were new and stylish."

> *These enchanting little ladies represent a deep appreciation for a manner of dressing that was once fashionable and elegant in a world that no longer exists.*

Les Petites Dames de Mode is sponsored by the Su-Ellen Shop of Clayton. Exhibit directors are Mary Strauss and Jean Crowder; honorary chairs are Su-Ellen Viscuso and Brigitte Frome. The exhibit is presented for the benefit of Tower Grove House by the Tower Grove House Auxiliary: Jean Crowder, Bette DeBernardi, Norma Hill, Marilyn Raphael, Carol Rechtien, Gloria Schopp, and Norma Silber.

John Burbidge, creator of Les Petites Dames de Mode, surrounded by some of his ladies. Each figure wears a handmade wig; many have miniature antique parasols or other accessories. Construction of the costumes corresponds as closely as possible to full scale garments, including foundations, boning on bodice seams, linings, interlinings, and lavish trimmings.

Gala Preview Victorian Tea

Friday, April 21, 1995 • 1 p.m. to 4 p.m.

Meet John Burbidge, creator of the exhibit. Music by the St. Louis Trio. $25 per person includes reserved parking in Tower Grove Park, shuttle service, and admission to the Garden. Please call (314) 878-1252 for reservations.

Daily: April 22 through May 19 • 10 a.m. to 4 p.m.

Tour admission: $3 members, $5 non members. For children ages 6 to 12: $.50 for children of Garden members, $1.50 for non-members.

Tour & Tea: Tea will be served fom 1 to 3 p.m. each Tuesday, Wednesday and Thursday during the exhibit, by reservation only. Cost of Tour & Tea is $12 members, $15 non-members. For children under12: $3 for children of Garden members, $5 for non-members. Please call (314) 577-5150 for reservations.

Mad Hatter's Tea Party • Saturday, May 6 • 2 to 4 p.m.

Bring your favorite little girls to see the dolls exhibit and enjoy an Alice in Wonderland Tea Party. Enchanting hats and costumes will be furnished for dress-up. Same fees as Tour & Tea above. Please call (314) 878-1252 for reservations.

Members

New Officers and Members of the Board

AT THE ANNUAL MEETING of the Garden's Members' Board, held on January 23, 1995, at Spink Pavilion, Jane Tschudy was reelected as president; other officers include Ann Bowen, first vice president; Joe Curtis, second vice president; Jim Goggins, treasurer; Holly Brigham, corresponding secretary; and Peggy Vickroy, recording secretary.

New members elected to serve on the Board are Bob Buck, Patty Brasher, Sue Breckenridge, Linda Connor, Martinna Dill, Kathleen Dudley, and Anne Hizar.

Top: New Board members, shown from left: Bob Buck, Sue Breckenfidge, Martinna Dill, Anne Hizar, Linda Connor, Kathleen Dudley. Not pictured: Patty Brasher.

Left: The 1995 officers of the Members' Board, shown from left: Ann Bowen, Jane Tschudy, Joe Curtis, Jim Goggins, Peggy Vickroy, Holly Brigham.

A Garden Party With Mom

Friday, May 12, 1995

MARK YOUR CALENDAR today for a special luncheon held in honor of Mother's Day. Bring your mother and special friends to the Garden for luncheon under the outdoor tent and a showing of charming spring fashions by Famous-Barr. Cost is $40 per person for members, and $50 per person for non-members. Watch your mail for a special invitation, or call 577-9500 by May 5 for reservations.

IN MEMORIAM

Mary A. Richardson

STAFF, MEMBERS, AND FRIENDS of the Garden were saddened by the death of Mary A. "Toni" Richardson on November 30, 1994. A member of the Garden for more than 25 years, she had served as a volunteer in the Membership and Development Office for the past eight years.

Toni was the widow of Joseph A. Richardson, co-founder of Shure Manufacturing Corporation and Shure-Richardson Inc. Mr. Richardson died in 1987. Toni is survived by two sisters and two sons, all of whom live in St. Louis, and by eight grandchildren and a great-grandchild.

Toni gave of herself unselfishly to her family and activities. She was one of those rare people who excelled at difficult, meticulous, repetitive work such as addressing, stamping, and mailing, the thankless tasks that are so important to any organization. "Toni enjoyed meeting people here at the Garden, and we certainly enjoyed her," said Brenda Banjak, membership coordinator. "The only thing she didn't like was when the work wasn't ready for her. She never wanted an idle moment."

Toni Richardson was a friend to many at the Garden for many years and she is deeply missed. Her family has requested that memorials be sent to the Garden or to Saint Louis Priory School and Abbey.

CLIFF WILLIS

BEHIND THE SCENES

Marcia Kerz Joins Missouri Historical Society Staff

MARCIA M. KERZ, former director of development at the Garden, has joined the staff of the Missouri Historical Society as vice president of Institutional Advancement as of March, 1995. Ms. Kerz will be responsible for all development, membership, marketing, and public relations for the Historical Society.

Ms. Kerz served as director of development at the Garden from 1987 to 1995. According to Peter H. Raven, director, "Marcia will be deeply missed. Her commitment and professional talent have benefitted the Garden greatly for nearly eight years. I know that she will offer the Missouri Historical Society a magnificent opportunity to grow and to position itself as the premier historical society in the United States."

Between 1990 and 1995, Ms. Kerz assisted the Garden in integrating fund raising, membership, public relations, and public events programs. During that period Garden membership grew from 23,000 to 30,500; visitors increased from 665,000 to more than 800,000; and individual contributions increased from $5 million to $6.2 million.

Marcia said, "While I will miss the wonderful members of the Garden's Board of Trustees, the Members' Board and the fantastic volunteers and staff, I look forward to the challenges ahead at the Missouri Historical Society."

GARDEN
GATE
SHOP

Spring Plant Sale – Bigger and Better than Ever!

Members Take 20% Off

This year the Gate Shop Spring Plant Sale will be held in conjuction with the new GardenExpo, April 21 –23. See the display under the tent outside the Shop for a huge selection of the very best in spring bedding plants and more. Inside, the Shop has a wonderful array of gardening tools, furniture, accessories, statuary, and gifts, plus the newest gardening books for spring. Be sure not to miss the book signings with popular gardening writers. Garden members receive a 20 percent discount on all Garden Gate Shop merchandise during the sale.

For Easter, the Shop has a wonderful selection of delightful holiday decorations, gifts, and basket stuffers.

Free Admission for Residents of St. Louis Only

IN JANUARY the Garden began offering its free admission times only to residents of St. Louis City and County, the taxpayers who support the Garden through the Zoo-Museum District. Visitors from outside St. Louis now pay full admission from 7 a.m. to noon on Wednesdays and Saturdays and on summer evenings Monday through Thursday after 5 p.m. from Memorial Day through Labor Day. During these times, St. Louis City and St. Louis County residents are still admitted free simply by showing any proof of residence.

Admission is still free at all times to Garden members, regardless of where they live. For non-members, admission fees are $3 for ages 13 to 64 and $1.50 for adults age 65 and older. Children age 12 and under are still admitted free with an accompanying adult.

"The Garden needs these additional revenues to maintain the world-class quality visitors expect from the Garden," said Douglas Arnold, director of public relations. "Zoo-Museum District taxpayers will still benefit from the free admissions, but seeking full admission from those outside the tax district is both a fair and a balanced way of increasing much needed revenues."

IN MEMORIAM

Mary Anne Grant

Mary Anne Grant, an 18-year-old student in the Garden's ECO-ACT Program, was killed in a bus crash in Haiti early in January while on a relief mission organized by the People to People Project. She was one of six children of Bill and Anne Grant of Manchester, Missouri.

Mary Anne was one of 22 St. Louisans on the mission. Another young woman from St. Louis, Jennifer Bernstein, also was killed in the crash.

Mary Anne was a senior at Nerinx Hall in Webster Groves. As a participant in ECO-ACT, she represented the Garden at Bristol Elementary School, where she taught environmental science to fourth graders. Although ECO-ACT students usually work in teams, Mary Anne's schedule made it necessary for her to teach her class by herself. She did an outstanding job.

Mary Anne's leadership was evident in everything she undertook. She founded a peace and justice club at Nerinx Hall and went to Honduras for her senior service project to help impoverished rural families. A star on the school swim team and a fine student, she had been accepted at St. Louis University, where she planned to major in education.

"Mary Anne was a remarkable and determined young woman," said Barbara Addelson of the Garden's Education Division. "The loss is very great for everyone who knew her, and our hearts go out to her family and friends."

Maried Swapp, ECO-ACT coordinator, added, "Mary Anne's bright, bubbly personality made her a wonderful addition to ECO-ACT and to the Garden community. She was a very special person, and we will miss her."

YOU & THE ENVIRONMENT

Environmental Summit Meeting Held at the Garden

THE GARDEN is an active participant in the St. Louis Environmental Roundtable, a group of local organizations dedicated to furthering environmental concerns. On January 14, 1995, the Garden hosted a "summit meeting" for these groups.

The St. Louis Environmental Roundtable was established to increase interaction among local environmental and conservation groups and help to increase their effectiveness. Dozens of organizations participate, including the Center for Science and Technology at the University of Missouri - St. Louis, the American Institute of Architects, the Audubon Society, EarthWays, the Conservation Federation of Missouri, Missouri Coalition for the Environment, the Sierra Club, The Nature Conservancy, and the Webster Groves Nature Study Society.

Delegates to the meeting in January discussed plans for specific collaborative actions and projects. These plans were grouped into seven objectives:

Influence Legislation Groups discussed ways to take more effective action to influence local, state, and federal legislation on environmental issues.

Enhance Education Programs to help ensure the success of environmental education in this region were discussed, including increased opportunities for collaborative efforts.

Scientific Community Ways to establish stronger ties to area scientists were considered.

Anti-Environmental Movement Delegates discussed strategies to deal with anti-environmental opinions among growing numbers of individuals and organizations.

Access to Resources of Other Groups Mechanisms were considered to increase access to the expertise and information of member groups.

Promotional Activites and Events Groups discussed ways to collaborate to make promotional efforts more effective.

Leadership Skills and Pool Delegates analyzed what skills are needed among the membership and ways to obtain cost-effective training.

After developing lists of specific collaborative actions and projects, groups were encouraged to formally adopt the plan and begin implementation.

Celeste Prussia, director of the Litzsinger Road Ecology Center for the Garden, said, "This community-based approach ensures that all voices are heard and that issues are approached fairly and intelligently. Each group has its own goals and objectives, of course. At the Garden we concentrate on efforts to improve education on environmental issues." She concluded, "We are proud to be part of the St. Louis Environmental Roundtable."

New Boardwalk at Shaw Arboretum

The newest highlight at the Arboretum is a 3/4-mile trail through the wetlands area, featuring a 310-foot boardwalk. Now visitors can stroll out over the water and really get a look at this beautiful habitat, perhaps catching glimpses of kingfishers, salamanders, frogs, migratory waterfowl, turkeys, muskrats, beaver, or deer. Thousands of plants from nearly 100 wetland species have been planted in the complex by staff and volunteers, including cardinal flower, pickerel weed, water lilies, rushes, cattails, and more. The boardwalk, constructed by Arboretum staff using lumber made from recycled plastic containers, was completed in October 1994. Construction of the Arboretum wetland area and boardwalk has been supported by the U.S. Fish & Wildlife Service and private donors. Be sure to visit this spring to enjoy all the seasonal changes at the Arboretum.

— From information prepared by Carol Davit

Maintaining Biodiversity at the Arboretum

MAINTAINING an ecological balance of plant and animal species is an increasingly challenging problem for managers of natural areas. As more and more land is developed, wild animals crowd into less and less suitable habitat, depleting the areas' resources.

Making a comeback from severely reduced numbers in the early 1900s, the white-tailed deer, *Odocoileus virginianus*, has increased disproportionately in Missouri over the past 50 years. Protection from overhunting plus their natural reproductive rate of 1-3 fawns per doe each year and the extinction of their natural predators are the reasons for this increase. The dark side of this success story is that deer populations have reached ecologically damaging levels in natural areas throughout Missouri, including Shaw Arboretum. Eventually, the deer herd may crash due to disease and starvation resulting from habitat degradation, but the damage they cause (especially, disappearance of plant species) before the crash can be permanent and dramatic.

To avoid further loss of species, the Arboretum manages its deer population. The population is censused annually by wintertime aerial surveys. In cooperation with the Missouri Department of Conservation, university researchers, animal rights groups and the local and national Humane Societies, all methods of controlling deer populations at the Arboretum have been and will continue to be considered thoughtfully and carefully.

Because alternatives such as immunocontraception (birth control) are still not feasible for wild, free-roaming deer, Shaw Arboretum held a carefully managed deer hunt on two weekends in January, attended by 75 hunters each weekend. Of approximately 100 deer on the unfenced land at the Arboretum, hunters took a total of 36 antlerless deer.

Research has shown that a population of about 15 deer per square mile is ideal for habitat health in Missouri. The goal for the Arboretum's 3.5 square miles of natural habitat is about 52 deer. The staff will continue to monitor numbers of deer at the Arboretum to work toward maintaining an ecologically appropriate population.

— James Trager, Ph. D.
Arboretum Naturalist

Science Educator of the Year

TIM PARKER

Christopher Brown (left) received the Garden's Teacher of the Year award from Larry DeBuhr, director of education, during a ceremony at the St. Louis Science Center.

CHRISTOPHER BROWN, science supervisor at the Ferguson-Florissant School District, has been honored as the Garden's Science Educator of the Year for his extraordinary service and leadership for science education in St. Louis. Mr. Brown was honored on November 14, 1994, at a teacher open house at the St. Louis Science Center honoring the E. Desmond Lee Family Education Program. The Science Center and the Saint Louis Zoo each honored a teacher of the year as well.

For the past five years, Mr. Brown has been a lead teacher for the Garden's "Ecology for Teachers" summer training course. He has been instrumental in implementing the Schoolyard Ecology Program, a joint project of the Garden and the Center for Ecosystems Studies in New York. Under his leadership, Ferguson-Florissant became the first school district to participate in the Eco-Inquiry program at the Litzsinger Road Ecology Center, and he has sent teachers to the Garden's Natural Science Institute training program funded by the Howard Hughes Medical Institute. Brown also works with the Garden in developing curriculum for the Public Garden–School Partnerships for Improved Science Education. He also serves as director of the Little Creek Nature Center, which is owned and operated by the school district.

In addition to all these projects, Brown also volunteers his time and expertise to summer programs in science education for the community, and he was one of the 100 national finalists selected for the Teacher in Space program.

Presenting the award to Brown, Dr. Larry DeBuhr, director of education at the Garden, said, "Chris has made an outstanding contribution to science education in the St. Louis community. We are proud to have him as a partner."

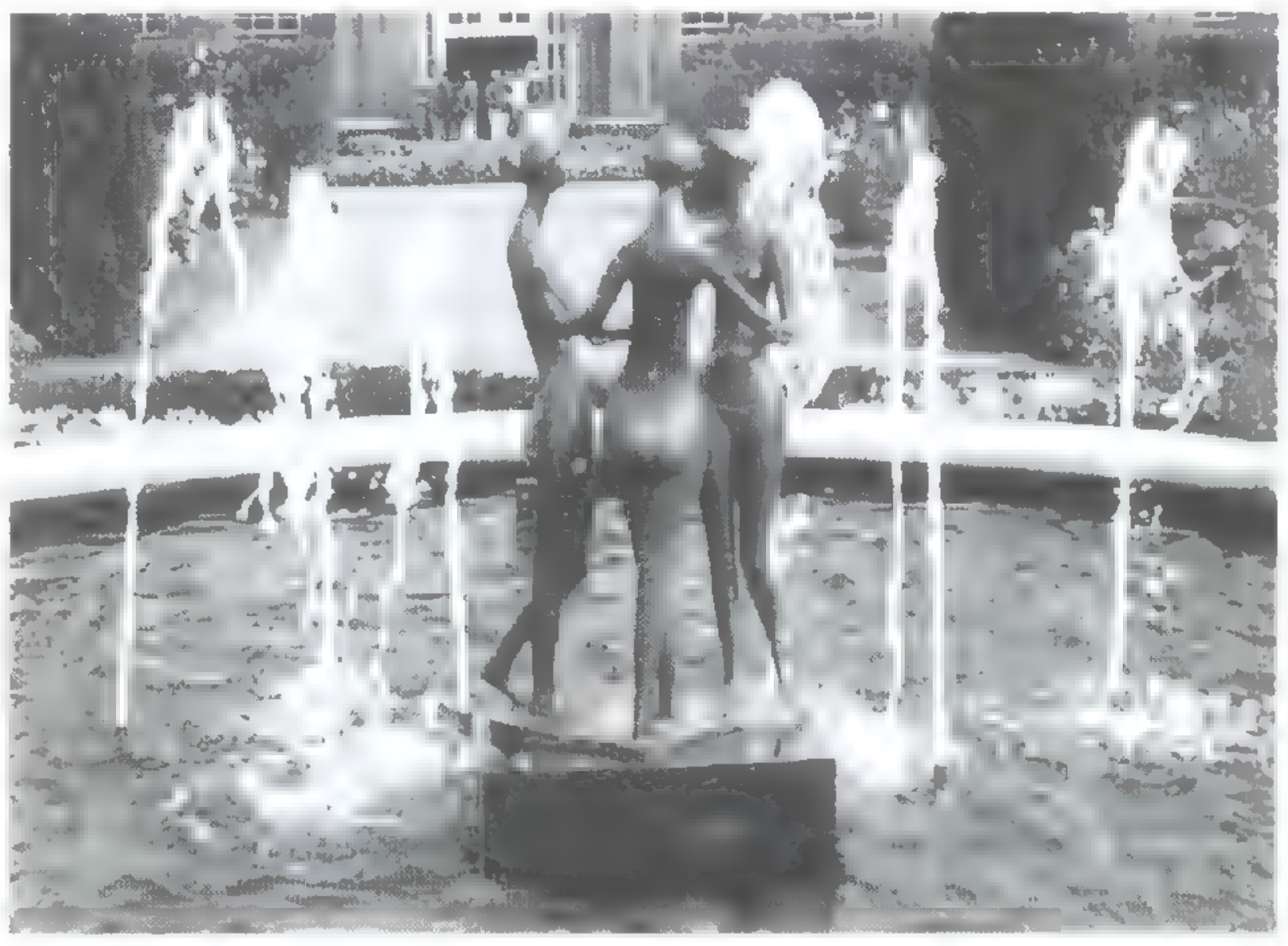
CLIFF WILLIS

Douglas Sutherland Joins ECO-ACT Staff

DOUGLAS L. SUTHERLAND, new program instructor for the Garden's ECO-ACT program, joined the staff of the Education Division in December 1994. However, Doug has been a familiar face at the Garden ever since his sophomore and junior years at University City High School, when he was an ECO-ACT student himself. Doug also worked as a summer assistant for ECO-ACT for four years while he attended Lake Forest College, where he graduated in 1994 with a B.A. degree. He credits the ECO-ACT Program with encouraging him to become a teacher and a leader.

In the ECO-ACT Program high school students learn about ecological science and environmental issues, then work with elementary school classes. The older students are trained in teaching methods and lead the younger students in classroom activities and community projects. Emphasis is placed on leadership, communication, and cooperation skills as students have the opportunity to meet and work with others from all over the St. Louis community.

Doug says, "I love being part of a program that spreads knowledge and understanding in an educational and environmental setting. ECO-ACT gave me a direction and goals for my future, and I want to give others a chance to find their own direction and goals."



The Three Graces, pictured here in the Gladney Rose Garden. The sculpture will be permanently displayed beside the new pool at the north end of the English Woodland Garden.

Mrs. Thomas S. Hall has given the lovely sculpture *The Three Graces* to the Garden as a memorial to her late husband, Dr. Thomas S. Hall. For many years the statue has been on view from time to time in the Shoenberg Fountain in the center of Gladney Rose Garden, when it has been here on intermittent loan. The bronze group of three graceful female figures, 42 inches tall, was created by the German sculptor Gerhard Marcks in 1956.

Dr. Hall served as a Garden Trustee from 1982 until his death in June, 1990. He had great enthusiasm for the Garden and its education programs and enjoyed walking through the grounds often. In his career Dr. Hall devoted 30 years of service to Washington University. He joined the faculty in 1945 as an associate professor of zoology and served as dean of the College of Liberal Arts from 1949 to the early 1970s. He continued to teach biology until his retirement. Dr. Hall was widely respected as an intellectual academic leader and as a engaging and compassionate teacher who was devoted to the study and concepts of ecology.

Peter Raven said, "I am really delighted that Mrs. Hall has chosen this way to remember Tom. It is a source of great pleasure to me to think of the millions of people who will enjoy this sculpture in the Garden over the years, thanks to Mary Hall's generosity."

Grants Support Computerized Information Programs

THE Andrew W. Mellon Foundation and the Spencer T. and Ann W. Olin Foundation have provided generous support of $350,000 and $100,000, respectively, to allow the Garden to computerize its library collections and begin to integrate library information with other botanical data generated by the Garden.

As in many organizations, Garden staff began making use of computers more than a decade ago. Library staff were placing records in machine-readable form to make them available through an international database, OCLC. Botanists and horticulturists were working with a few personal computers and home-grown programs in hopes of providing botanical information in a more efficient and effective way. Within the past several years, TROPICOS, a database of taxonomic information, and several horticultural databases were developed. The project to convert library records also was completed.

Once the records were converted, the library began to search for a computer system that would integrate all its functions, including the provision of public access to library information through a computer rather than the card catalog. In addition to computerizing library information, the Garden wanted to provide a means to connect the information in the library computer to its growing databases of botanical and horticultural information. Even further, the Garden chose to make all of the information in these databases available world-wide, to individuals with personal computers as well as institutions.

The Garden recently signed a contract with Ameritech Library Services for a library system called Horizon. Horizon was chosen for its ability to accomplish the Garden's computerizaton goals, especially its potential to be integrated with the Garden's other databases.

This is a very exciting development for users of our library, and the Garden is very grateful to the Mellon and Olin Foundations for making this advance possible.

— Constance P. Wolf, Garden librarian

NEH Awards Challenge Grant for New Library

THE National Endowment for the Humanities (NEH) has given the Garden a $294,000 challenge grant to help construct the library planned for the Garden's new research center. The award requires the Garden to raise an additional $1,176,000 from private sources.

The Garden's library is widely considered one of the world's most important research collections relating to systematic botany. It houses 118,000 volumes, with approximately 2,000 volumes added each year. The library's holdings include an archival collection of more than 220,000 items on the history of the Garden, St. Louis, and botany; an extensive rare book collection dating to 1474; and a fully equipped book conservation center.

Parts of the library collection serve as invaluable resources to scholars working in disciplines related to the humanities. "Humans depend on plants for survival; their relationship to plants is completely interwoven with cultural, economic, and social aspects of life," said Constance P. Wolf, Garden librarian. "By providing access to rare books, folios, botanical art and photographs, among other holdings, the library makes an immportant contribution to the study of the humanities."

The grant was one of 30 challenge grants announced by NEH on December 15, 1994. This is the second NEH challenge grant awarded to the Garden. The first, awarded in 1985, provided $85,000 for a renovation of the John S. Lehmann Building, where the library is currently housed.

Volunteers are urgently needed to help prepare the library collections for computerization. Projects include working with card files, locating missing books, and barcoding. Familiarity with libraries and card catalogues is preferred, with attention to detail and accuracy a must! For further information, please call Jeanne McGilligan at 577-5187.

New Dictionary Combines Botanical and Chemical Information on Legumes

ON DECEMBER 14, 1994, a copy of the new *Phytochemical Dictionary of the Leguminosae* was presented to the Garden's library. The two-volume work is a collaborative effort by ILDIS, the International Legume Database and Information Service, and CHCD, the Chapman & Hall Chemical Database. It was published by Chapman & Hall's Scientific Division. Dr. James L. Zarucchi of the Garden's Research Division, who serves as a director of ILDIS, was one of the primary synthesizers of data for the book.

By combining two powerful databases, the *Dictionary* provides a unique record of the natural products found in legumes. The Leguminosae is one of the world's most economically important plant families, supplying protein-rich foods such as peas and beans as well as sources of timber, fiber, gums, resins, medicines, and other products.

The *Dictionary* will serve as an invaluable resource for researchers working to develop new medicines and products from plants. In addition, Zarucchi pointed out, "The project will stimulate new research by revealing which plants have not yet been examined for their chemical properties."

The Garden is an important contributor to ILDIS, the major collaborative effort that co-produced the *Dictionary*. TROPICOS, the Garden's database, provided much of the botanical data for the New World legumes. Dr. Nancy Morin, the Garden's assistant director, is a trustee of ILDIS.

Shown with copies of the new Dictionary in the Garden's library are (from left): Dr. Nancy Morin, Dr. James Zarucchi, Dr. Frank Bisby, Dr. Peter H. Raven, and Dr. Roger M. Polhill. Zarucchi, Bisby, and Polhill are all members of the ILDIS Directorate.

Have You Seen... One of the first harbingers of springtime in the Japanese Garden is the exquisite Higan cherry, or weeping cherry, *Prunus subhirtilla* var. *pendula*. Of the four species of flowering cherry trees in *Seiwa-en*, the weeping cherry is the earliest bloomer, flowering in March or April before the leaves appear. Native to Japan, weeping cherries are quite durable in St. Louis. The single pink blossoms are borne in umbrels of two to five flowers strung tightly together on pendant branches that seem to flow to the ground like a fountain. Near the end of the blooming season, the slightest breeze will cause the spent blooms to flutter down like a whirl of snowflakes. Many Japanese worship the cherry blossom as the goddess of spring; it is recognized as their national flower. To the *Samurai*, feudal warriors of Japan, cherry blossoms represented the joy of reaching the fullness of life, but awaiting death in the next instant. Weeping cherry trees can be seen in the dry garden, *O Sekitei*, at the south end of *Seiwa-en*.— *Ben Chu, manager of Seiwa-en*

KING SCHOENFELD

CHIP TYNAN

Have You Noticed... Yellowhorn, *Xanthoceras sorbifolium*

Rarely cultivated even in public gardens and virtually unknown to the nursery trade until recent years, the yellowhorn, *Xanthoceras sorbifolium*,is a real showstopper when it comes into bloom in late April or early May. The Garden has several outstanding specimens in a small grove just northeast of the Kaeser Maze. Early Garden records about these rare plants are sketchy, revealing only that 50 two-foot plants were received on April 22, 1919. It is unclear whether the current grove dates from those plants or from seedlings grown from the original purchase. We do know that this grove is unquestionably one of the finest in the Midwest, if not the entire nation.

A member of the soapberry family, Sapindaceae, *Xanthoceras* is native to northern China and suited to USDA hardiness zones 4 - 7. Its five-petaled white blossoms are lightly scented and about an inch wide, borne on erect panicles. Each flower is marked at its base with an "eye" that changes from yellow to carmine-red as the flower ages. Lustrous green pinnate leaves emerge with the flowers and remain on the stems until late fall.

Xanthoceras grows best in full sun, but will tolerate some shade. It prefers rich, loamy, well-drained soil. Provide a site sheltered from wind and not subject to late frosts, which may damage the emerging flower buds. Propagate new plants from stratified seeds sown in spring or root cuttings taken in winter.

Yellowhorn is notoriously difficult to transplant. Carefully set out container-grown specimens in spring and avoid injuring the fleshy roots, which are easily damaged. Prune sparingly, just to shape, and remove dead wood when it occurs.

— *Chip Tynan, MBG Horticulturist*

Raven Receives Chancellor's Medallion from UM–St. Louis

Dr. Peter H. Raven was honored by the University of Missouri–St. Louis with its Chancellor's Medallion at a gala dinner and ceremony on January 12, 1995. The event raised $25,000 for scholarships for students at the International Center for Tropical Ecology (ICTE). Raven received the medallion in recognition of his service to the St. Louis community and his collaboration with the University in establishing the ICTE. UM–St. Louis Chancellor Blanche M. Touhill, shown above with Raven, said, "Few individuals have done more to help the world community to understand the complexity and interdependence of tropical ecosystems. And few have done more to save these ecological systems. His dedication to partnership has resulted in the establishment of a world-class educational and research facility, the International Center for Tropical Ecology at UM-St. Louis."

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What is colorful as a painter's palette, as fragrant as all the perfume in Paris, and millions of people dig it? It's America's number one hobby, gardening. Whether you're an expert or a novice, find all the fun, facts, and fascination of gardening this April at the Garden's new three-day event. Indoors and outside under the giant tents, you'll find opportunities to learn more about the tools, tactics, and techniques of successful residential gardening.

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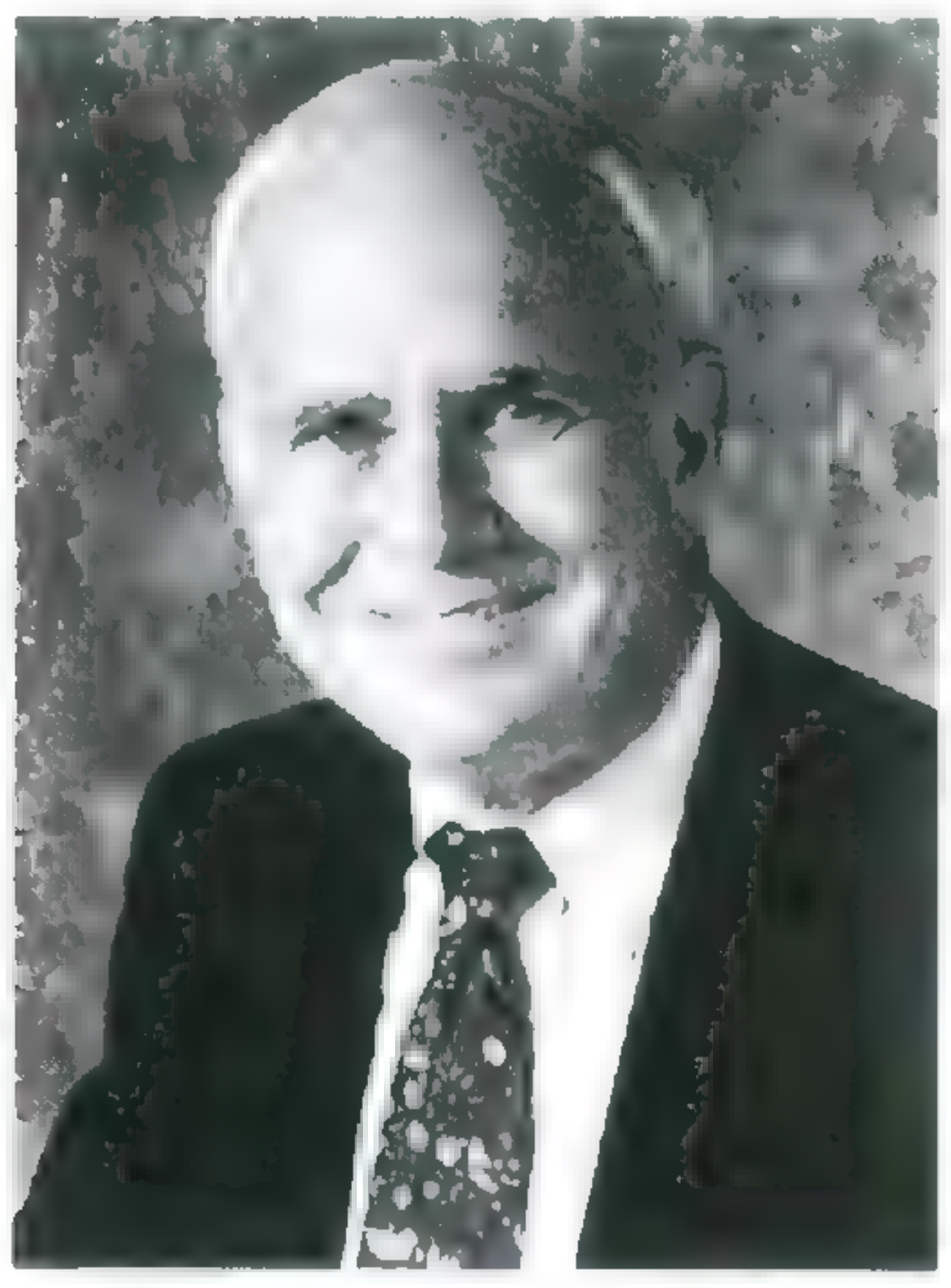
Comment

Missouri Botanical Garden Mission: "To Discover and Share Knowledge About Plants and their Environment, in Order to Preserve and Enrich Life."

This spring we are seeing the final results of our 1972 Master Plan come to fruition, as the first features of the William T. Kemper Center for Home Gardening are completed. Those of you who are looking forward to the conclusion of the extensive construction on Garden grounds can take heart; the heavy equipment and fences will soon be gone. This summer we will be planting many of the displays at the Kemper Center and putting the finishing touches on others. I encourage each of you to come to the Garden this spring to enjoy the beauty of the grounds, including the new Flower Walk beside the Climatron and the newly expanded English Woodland Garden, as well as all of the familiar parts of the Garden that are unchanged and as lovely as ever. Please see page 14 for your invitation to the official opening, especially for members, of the new Entry Court at the Kemper Center on June 17.



This issue of the *Bulletin* is filled with news of the Partnership Campaign. On page 4 we salute two more donors of demonstration gardens, the James M. Kemper, Jr. Family and Mercantile Bank. Renovations at the Joseph H. Bascom Manor House at Shaw Arboretum include the installation of a geothermal heating system, described on page 16. And the delightful bronze sculptures being created by St. Louisan Robert Lee Walker for the Kemper Center are previewed on pages 6-7.

Our focus on environmental issues continues as well. See an update on activities of the Center for Plant Conservation on pages 8-9, including a guide to rare plants on the grounds; and Dr. Steve Cline shares tips on how to conserve water with low maintenance gardening on pages 10-11.

May and June bring the start of the exciting round of summer activities at the Garden, beginning with our annual Rose Evening celebration on May 26. When extended summer hours begin on Memorial Day, the Garden will remain open until 8 p.m. every day through Labor Day; be sure to take advantage of the lovely summer evenings for a quiet stroll. Join us for the marvelous "Jazz in June" concert series, Members' Musical Evening, a wonderful variety of plant society shows, and the splendid exhibit by the National Geographic Society on view in Monsanto Hall. See the Calendar on pages 12-13 for details on all these events and more at the Garden this summer.

— *Peter H. Raven, Director*

Armen Takhtajan Visits the Garden — Professor Armen L. Takhtajan, one of the world's leading taxonomists, addressed the Garden's Board of Trustees at their meeting in Spink Pavilion on February 22, 1995 Prof. Takhtajan, who received the Henry Shaw Medal in 1993, is a former director of the Komarov Botanical Institute in St. Petersburg, Russia. The Garden has been a leader in the international effort to assist the Komarov in finding funding to maintain its priceless herbarium collection. Prof. Takhtajan is shown here addressing the Trustees; William H. T. Bush, first vice-president of the Board, is at right.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this *Bulletin* and mail to:

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On the Cover

Peonies bloom in the Japanese Garden in May.

Photo by King Schoenfeld

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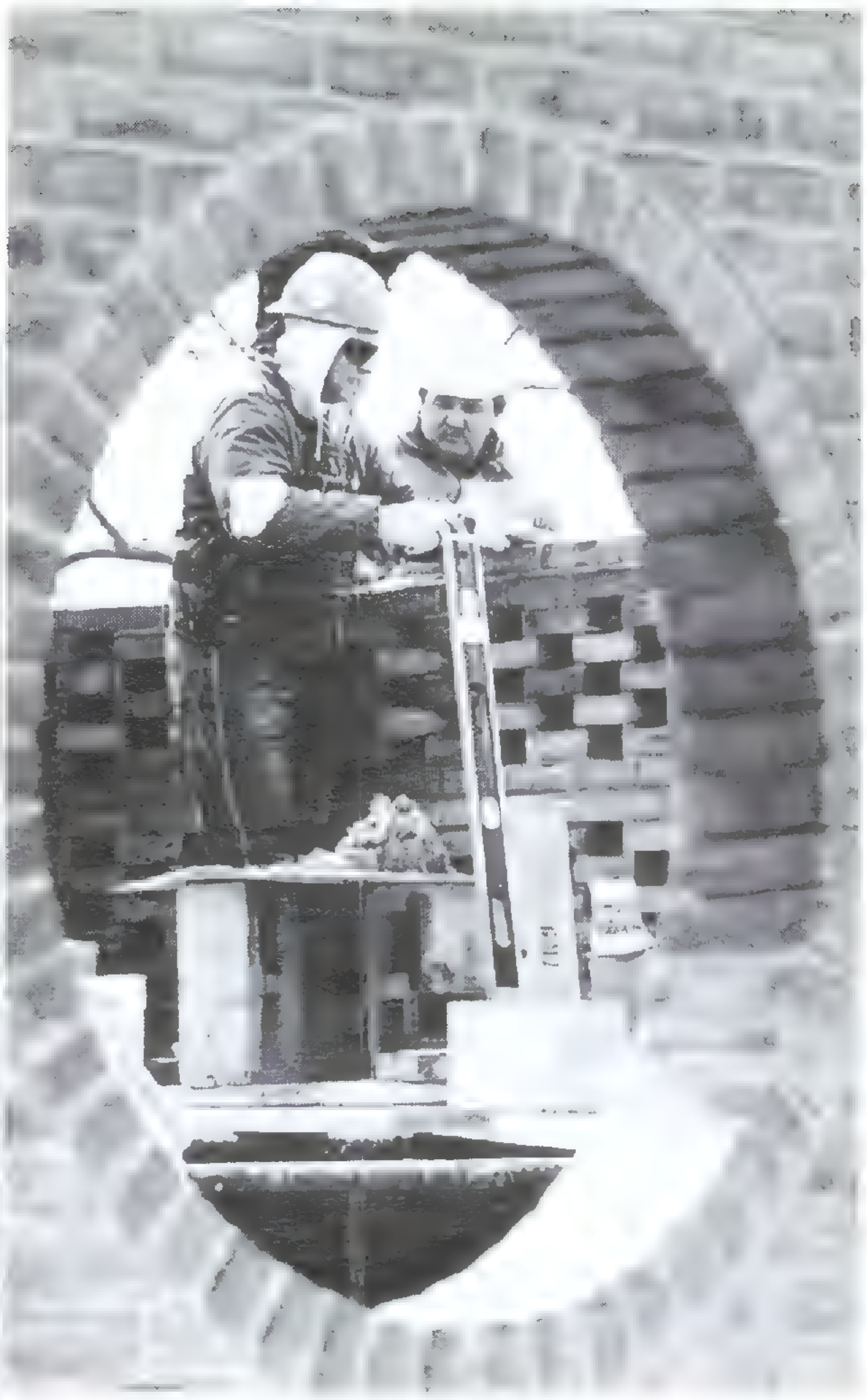
This page: The Ruth Palmer Blanke Boxwood Garden is taking shape in an area between the Kemper Center demonstration gardens and the English Woodland Garden.

Top: The gate to the Boxwood Garden gets its finishing touches.

At right: This elegant gazebo is a highlight of the Boxwood Garden.



Above: Workmen are framed by the decorative brickwork of the Boxwood Garden's outer wall. Elegant brick walls and pavings are featured throughout the new gardens.

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Above: The Garden for All on the east side of the demonstration gardens area features raised beds accessible to people with disabilities. A sweeping semi-circular cedar pergola encircles the central lawn in the background.

PHOTOS BY CLIFF WILLIS

Completing the Master Plan

DURING the past few months it may have seemed that construction areas were threatening to take over the Garden. But all that work has had a clear purpose. Almost 25 years ago the Board of Trustees adopted a Master Plan developed by Environmental Planning and Design of Pittsburgh, a plan that has guided development of the Garden's grounds ever since. This year, with the dedication of the outdoor gardens at the William T. Kemper Center for Home Gardening, we have achieved the culmination of the 1972 Master Plan, and the end of all the construction is in sight.

The temporary fences are gone, and this spring the grounds are more beautiful than ever. Where the Desert House once stood, a lovely new Flower Walk has been planted, featuring seasonal displays and colorful beds of annuals and perennials along the path to the Kemper Center. And as the photographs on these pages show, the new demonstration gardens at the Kemper Center are really beginning to take shape. Dedication of the Members' Entry Court and adjacent areas is scheduled for June 15 and planting will continue throughout this year until the official opening next year. See page 14 for details — and come to the Garden to enjoy the spring flowers!

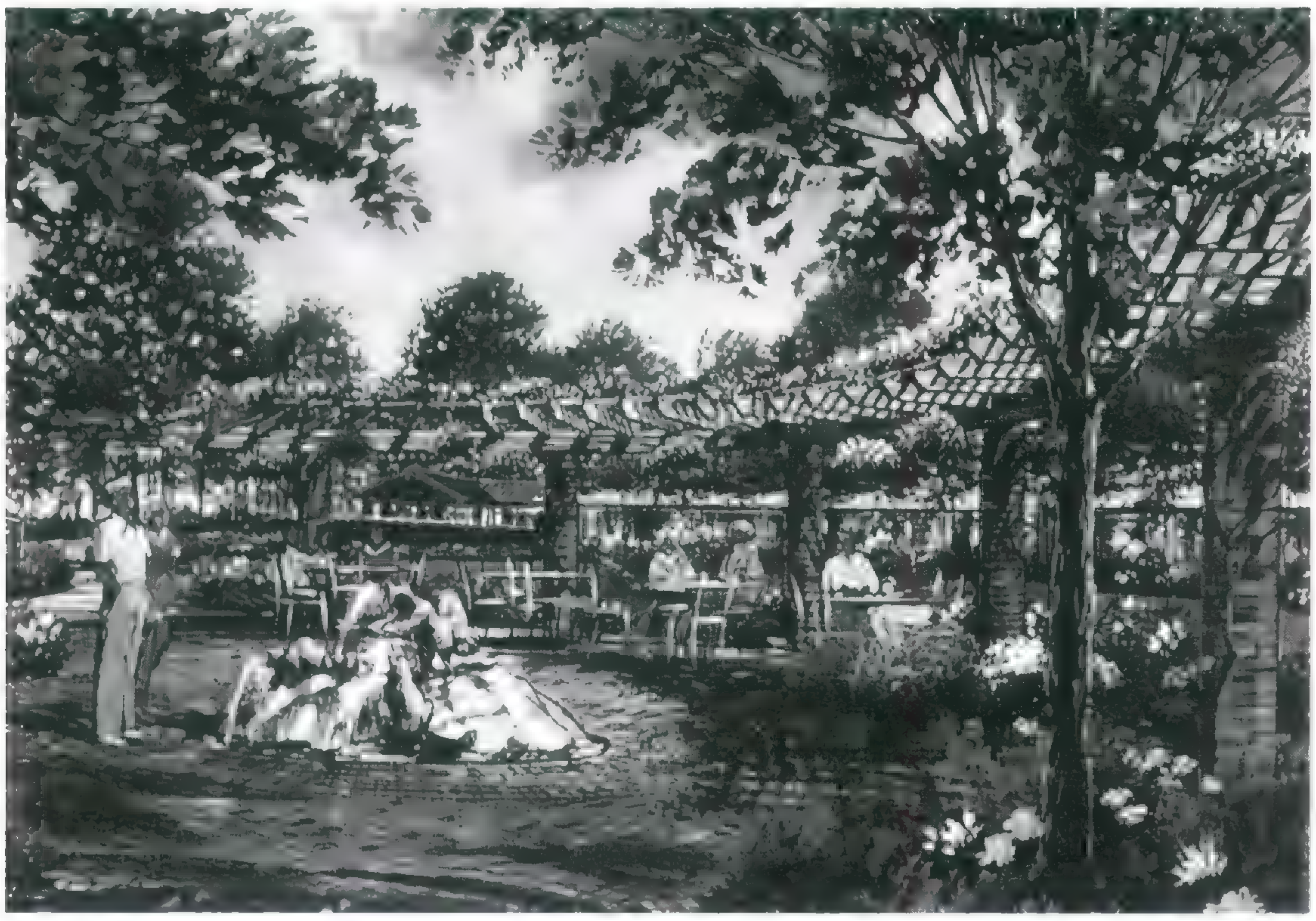
Kemper Family Sponsors the Terrace Garden

THE TERRACE GARDEN will be among the first to open this summer and will be one of the most striking features of the new demonstration gardens. A spacious brick patio with expansive views across the main lawn, the Terrace Garden will provide a beautiful gathering place for receptions and special events. It has been made possible by the generosity of James M. Kemper, Jr., David W. Kemper, and their family. David Kemper, Mr. Kemper's son, is one of the Garden's Trustees, and the Terrace Garden has been given in memory of his mother, Mildred Lane Kemper.

David Kemper said, "My family and I believe in supporting the communities where we live and work. It has been a great pleasure to me personally to be involved with the Garden, and I am very glad that my father and family have chosen to remember my mother in this way." The William T. Kemper Foundation, named for David Kemper's great-uncle, made the naming gift for the entire Center for Home Gardening.

The Terrace Garden will be partially encircled by a cedar arbor planted with shady vines and hung with colorful blooming baskets. In the center of the herringbone brick pavement will be a fountain with three bronze raccoons frolicking on large stones. Visitors will approach the Terrace Garden along a brick-paved path from the Entry Court that winds down a slope planted with shrubs and perennials, looking out over the lawns and flower borders below. The Terrace Garden will also be accessible from the middle level of the Kemper Center, making it a perfect gathering place for events and parties.

Dr. Raven said, "The Kemper family, Commerce Bank, and the William T. Kemper Foundation have been wonderful supporters of the Garden for many years. We couldn't be more pleased that Mrs Kemper will be honored with such a lovely tribute. The Terrace Garden promises to be a special gathering place that visitors will enjoy for years to come."



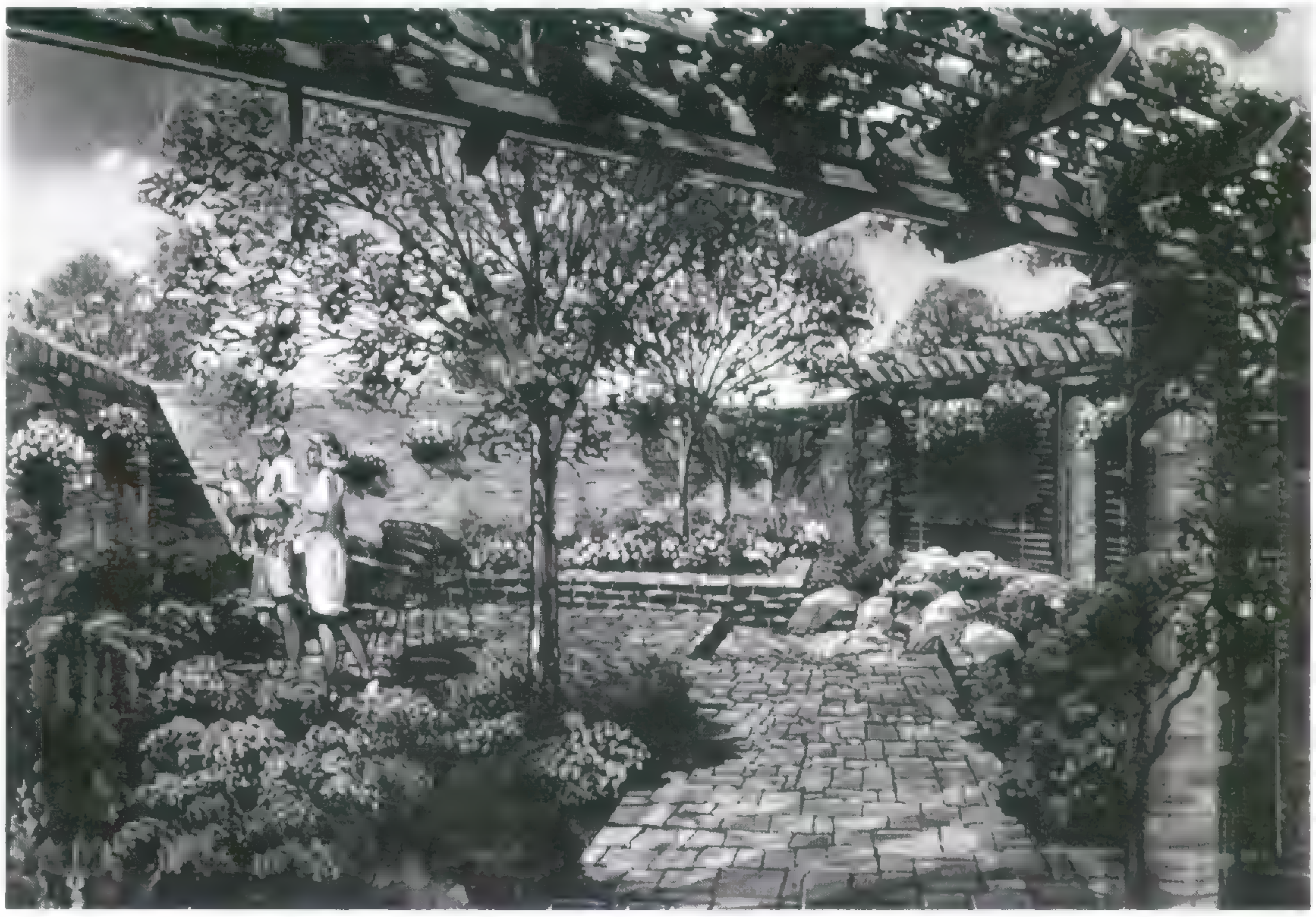
RENDERINGS BY MARTY COULTER

Mercantile Bank Donates the City Garden

MERCANTILE BANK OF ST. LOUIS has made a generous gift to support the City Garden, one of the 23 demonstration gardens at the William T. Kemper Center for Home Gardening. As the leading mortgage lender in St. Louis, Mercantile has decided to sponsor a garden that will demonstrate how to turn a small home plot into an oasis of quiet beauty.

Urban gardens must make the most of small spaces. The City Garden is walled in brick, entered beneath a vine-covered cedar arbor. The garden will feature a small seating area around a charming pool planted with water lilies and irises where a bronze otter chases fish, shaded by an ornamental tree. Borders of mixed shrubs, perennials, annuals, herbs, and ornamental grasses will be designed to make the small "outdoor room" appear larger. One corner will be devoted to high-yield vegetables and a cedar trellis for climbing vegetables, hanging pots, and espaliered trees.

Dr. Raven said, "Mercantile Bank has a long history of supporting the Garden; their generosity has helped to support the Ridgway Center and the Climatron, among many other projects. It is wonderful that they have now chosen to add this pleasant feature, designed especially for St. Louis homeowners. The City Garden promises to be a rich source of ideas for enthusiastic urban gardeners."



TIM PARKER

Gift Planning Report

Dr. and Mrs. Harry T. Duffy Establish a Charitable Remainder Trust

Virginia and Harry Duffy at the Ridgway Center, seated in front of the planting beds that will bear their name.

WHEN Dr. Harry T. Duffy retired last winter, he and his wife Virginia decided to mark the milestone by doing something exceptional for the Missouri Botanical Garden.

The Garden has been a vital part of the Duffys' lives. Virginia and Harry both grew up near the Garden and spent many hours here as children; later they brought their children and grandchildren.

The Duffys wanted to make the most significant gift possible to the Garden to cap their lifelong affection. However, they did not want to jeopardize their ability to enjoy their retirement. The perfect solution was a gift planning method called a Charitable Remainder Trust. This type of trust allows the Duffys to donate major assets to the Garden while retaining the income generated by those assets. To use a horticultural image, it is like giving the tree away, but keeping the rights to the fruit for a period of time. Besides providing the income to the donor, Charitable Remainder Trusts have additional attractive features such as immediate income tax benefits and avoidance of capital gains taxes.

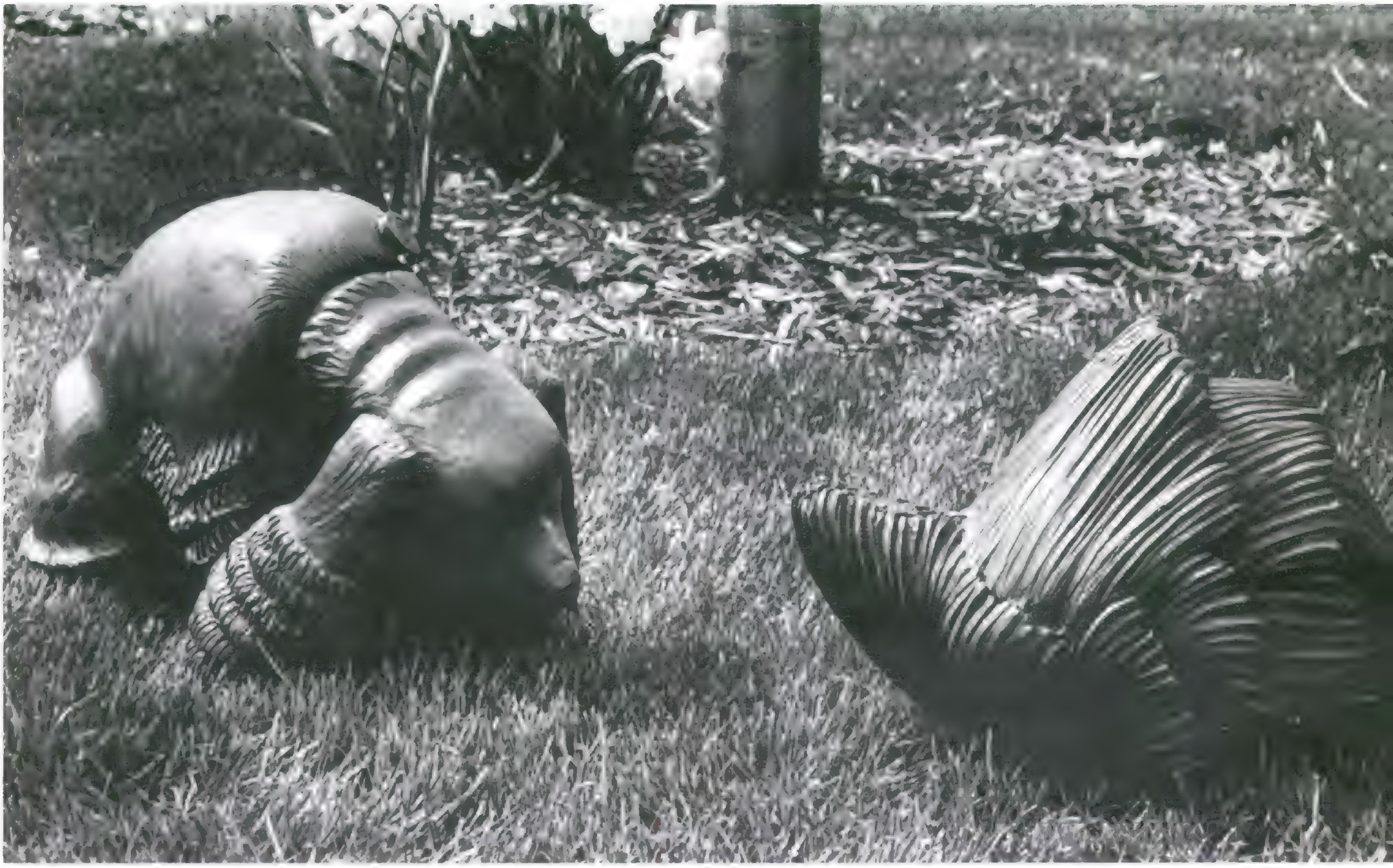
To acknowledge this wonderful gift from Dr. and Mrs. Duffy, the east planting beds in front of the Ridgway Center will be named to commemorate their lifelong support.

Virginia Duffy relates:

"Growing up near the Garden, it was a nice family walk from our home to the entrance on Tower Grove. However, my friend Alice and I always took the short cut through the back entrance on Shaw (now the Ridgway entrance), scooting past the maintenance buildings before anyone saw us. We went along the pillared walkway behind the big display house (now the Climatron area), through the undeveloped area and past the lake to the Prings' house in the southwest corner of the Garden property, where the Japanese Garden is now. On the way back, we usually stopped at the big old ginkgo tree that was great for climbing — that is, until a workman saw us and we made tracks for the gate!

"After our marriage, my husband and I stayed in the area and our three children became familiar with the Garden. When our son, Tom, was in grade school, he and other students were privileged to have garden plots here. We enjoyed his great vegetable harvest — except for the prolific brussels sprouts. Our lucky neighbors got to enjoy those! In recent years, our daughter took pictures of specimen plants and landscaped areas at the Garden to use in teaching her horticulture classes at Kansas City Community College.

"Now we enjoy bringing our grandchildren to the Garden. You might say we are a multi-generation Garden family! We watch with keen interest as each new project develops. That's why we are so pleased to feel a part of the Garden's continuing growth with our Trust. We have seen other botanical gardens, but none is so lovely or special as 'our' Garden."



Above: Robert Walker with a partially completed sketch of the bronze filigree panels that will decorate the open pediments of the Butterfly Pavilion.
Right: The original clay model of a whimsical fish.

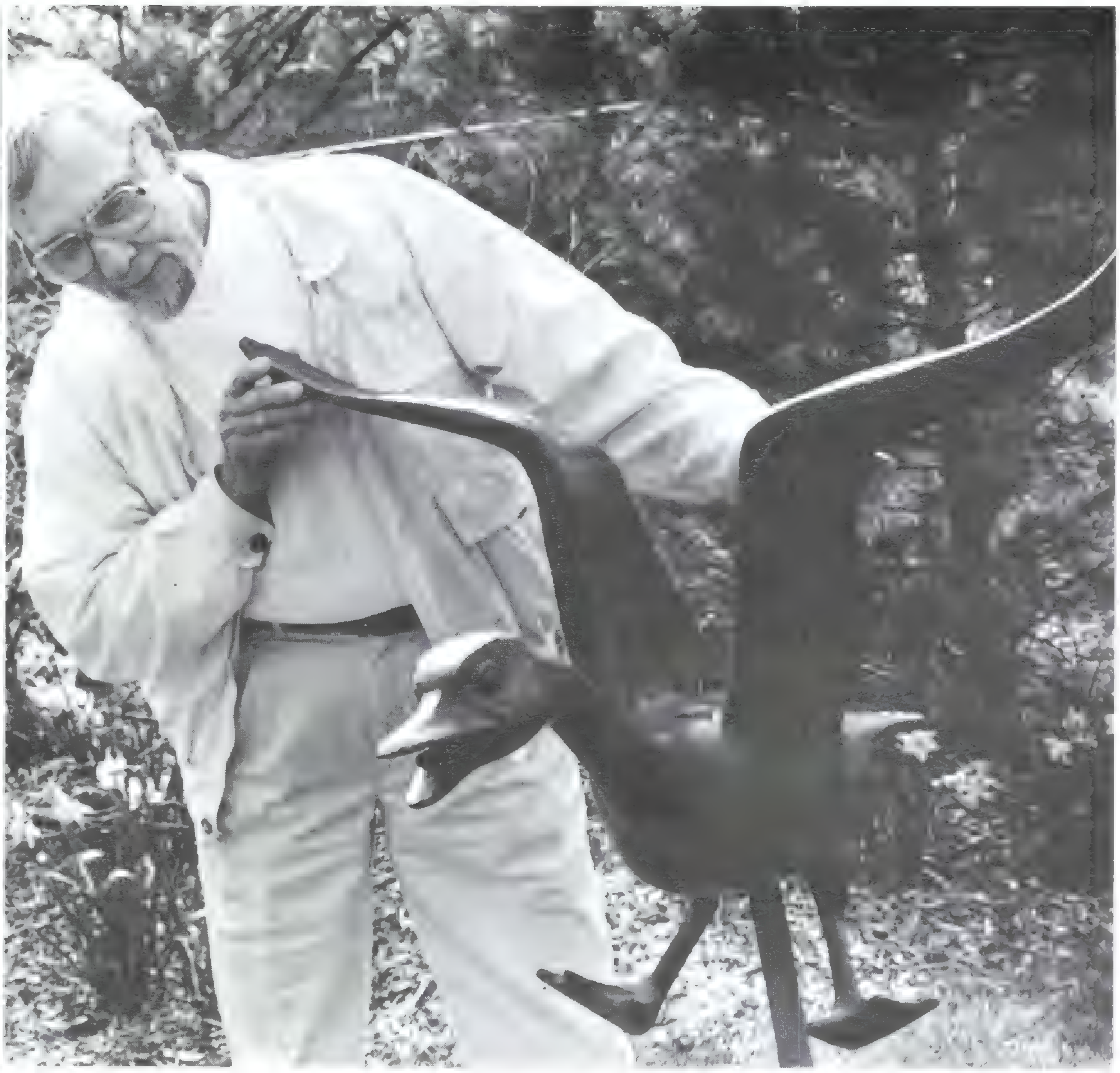
ROBERT LEE WALKER

Creating

PLAYFUL otters, dancing geese, a porcupine and a cocker spaniel — if you can't wait for a glimpse, here is a preview of the wonderful sculptures that will highlight the new gardens at the Kemper Center for Home Gardening

The work of St. Louis sculptor Robert Lee Walker is already familiar to Garden visitors from the beautiful "Birds in Flight" Waldemer Memorial Fountain that stands beneath an enormous ginkgo tree near the Lehmann Rose Garden. Mr. Walker, who was born in Poplar Bluff, Missouri, grew up in St. Louis and taught sculpture at John Burroughs School in Ladue from 1950 until his retirement in 1987. From 1987 to 1993 he continued to work at Burroughs as artist-in-residence and still teaches a night course at the school. He earned a B.F.A. from Washington University School of Fine Arts, where he studied with Carl Mose and Richard Duhme, Jr. Walker did graduate work at the Cranbrook Academy of Art from 1949 to 1950, where he met and was influenced by Carl Milles and Eliel Saarinen.

The bronze sculptures for the Kemper Center were commissioned by Environmental Planning and Design of Pittsburgh in 1987 at the recommendation of Alan Godlewski, the Garden's late director of horticulture. From the very beginning of the project, the pieces



Opposite page, top:* *The curious cocker spaniel represents Sito, the pet of Mr. and Mrs. Whitney Harris. Sito and his porcupine will be featured in the Secret Garden, donated by the Harrises.

This page, above:* *Robert Walker with one of his finished bronze geese.

This page, top left:* *Walker in the studio with the full-size clay model of his "fishing otter."

Below, left:* *Walker with another playful otter. When cast in bronze and installed in a fountain in the demonstration gardens, the sculpture will appear to float on its back while spouting water from its mouth.

a Bronze Menagerie

were envisioned as groupings of animals in playful interaction with water features and fountains.

In early 1993, Mr. Walker began to work on the final list of sculptures, which includes two separate groups of geese, a single fishing otter, a group of four playful otters with fish, three raccoons, a cocker spaniel warily investigating a porcupine, a prairie dog, and a pair of peacocks. In addition, Mr. Walker was asked to create bronze filigree panels for the butterfly pavilion and a bronze medallion for the boxwood garden. He has already completed several of the pieces, and is working on others in his studio in St. Charles.

"Water is an important sculptural element in these designs," he said. "The peacocks' tails will have moving sprays of water, and water will play from the mouths and skidding feet of the geese. I wanted to create realistic animals, but with a sense of whimsy. Some characteristics of the figures are anthropomorphic, or human-like, to accentuate this sense of play."

In his studio, Walker models the figures in oil-based clay applied over a base of carved synthetic foam. Later the sculpture is cast in bronze at a foundry in Lawrence, Kansas, using the "lost wax" method. This is an ancient technique in which workmen first make a rubber mold directly from the clay figure. The rubber mold is brushed with wax, then peeled away, leaving a hollow wax replica of the clay sculpture.

Walker frequently makes minor adjustments to the wax replica. Then the wax form is dipped repeatedly into liquid ceramic "slip", which builds up into a shell about three-eighths of an inch thick. The ceramic is fired in a kiln, which melts the wax, leaving behind a hard ceramic mold. The mold is coated inside with molten bronze, and when the metal is cool, the ceramic is chipped or broken away, leaving a hollow bronze cast of Walker's original clay model. Each subsequent cast of the piece, if any, must start again with the rubber mold.

"It isn't easy to get the sculptures from my studio to the foundry," Walker said. "I usually have to cut the larger figures into pieces, and I had to build an insulated 'refrigerator' out of styrofoam to keep the clay from melting in the back of my station wagon!"

"I don't try for profound symbolism in my work," Walker said. "I want it to be beautiful, with a sense of fun." When the Kemper Center gardens are opened, visitors will have the opportunity to see an important body of work by a St. Louis sculptor, highlighting a major new attraction for the city.

What in the World Is a Bladderpod?

WHEN YOU VISIT THE GARDEN this spring, keep your eyes open in the neighborhood of the Dry Streambed Garden near the Climatron. Mixed in among the familiar daylilies and dogwoods, you will discover something that looks like a gigantic weed. It is actually a rare heart-leaved plantain, *Plantago cordata*. In the Scented Garden, watch for Price's potato bean, *Apios priceana*, and be sure to see the Ofer hollow reedgrass, *Calamagrostis porteri* ssp. *insperata*, to the west of the Shoenberg Administration Building. All of these unusual plants are part of the Center for Plant Conservation's National Collection, in protective cultivation here at the Garden.

A National Collection

The Missouri Botanical Garden is just one of 25 botanical institutions in the United States that form the CPC's consortium of Participating Institutions. Each garden or arboretum is responsible for conserving and studying the endangered plants in its region of the country. The CPC, which was founded in 1984 and moved its headquarters to the Missouri Botanical Garden in 1990, is the only organization in the U.S. dedicated exclusively to protecting America's threatened plant species from extinction.

The CPC estimates that currently 4,200 native species are of conservation concern in the U.S. — roughly one fifth of the entire flora of the country. If you seek out the plants from the CPC National Collection growing on Garden grounds, you will also find interpretive signs nearby that display the CPC logo. These signs are one part of the CPC's effort to educate and inform the public about the importance of preserving our natural plant resources from the pressures of population growth and development that are pushing many species toward extinction.

At present the CPC National Collection includes 482 critically threatened species. Just five regions in the U.S. harbor 75 percent of them: Hawai'i, California, Texas, Florida, and Puerto Rico. The CPC organizes task force meetings with experts in these regions to assess the current situation and establish priorities. The Center also maintains an extensive database of information on plants of conservation concern.

Each participating institution collects samples from endangered plant populations in natural areas within its region. These samples — seeds, entire plants, or cuttings — are carefully maintained as a backup against extinction and for eventual reintroduction to natural areas. In addition, seeds are stored at most member gardens and at the U.S. Department of Agriculture Laboratory in Fort Collins, Colorado.

At the Garden, the CPC president Dr. Brien Meilleur works closely with Anukriti Sud, manager of conservation programs, and Dr. Kayri Havens, conservation coordinator for the Garden's Horticulture Division. Anukriti coordinates the conservation activities of the 25 CPC participating institutions and keeps track of the status of every species in the National Collection. "CPC is a clearinghouse for information about rare and endangered plants," Anukriti explained. "We help to establish national guidelines for collection and maintenance of rare plant material. The National Collection is a conservation collection, but it is also a working collection used for doing research on rare plants."

Rare Plants at the Garden

The Missouri Botanical Garden is one of the few CPC participating institutions that has a staff member specifically hired to maintain its CPC program. Dr. Kay Havens, who earned her B.A. and M.S. degrees in botany from Southern Illinois University in Carbondale and her Ph.D. in biology at Indiana University in Bloomington, joined the staff of the Garden's Horticulture Division last year. Kay maintains 18 species from the National Collection at the Garden and conducts research on their reproductive biology and propagation. "Because endangered plants are not typically propagated, I look at how horticultural varieties related to these plants are grown for clues on germinating the endangered plants' seed," Kay said. "Studying the reproductive biology of rare plants is vitally important, because so little is known about them and there are so few left."

Kay's work received a big boost recently from the Bay Foundation, which awarded a $5,000 grant to the Garden for a seed storage and germination laboratory to be installed this spring. If seeds are not kept under carefully controlled conditions, their ability to germinate is greatly reduced. "With the new freezer and desiccator, we can increase the lifespan of our seed collection from years to decades, maybe even centuries," Kay explained.

In addition to maintaining the CPC collection at the Garden, Kay explores the midwestern region, seeking additional wild populations of endangered plants and studying the ecosystems where they can survive. She has also coordinated the construction of raised beds at the Shaw Arboretum nursery where she can conduct studies. "We just don't have enough seed to put all of the plants on display," Kay said, "but these nursery facilities will help us to learn more about the plants and maybe collect more seed. All of this will help us eventually to reintroduce more plants into natural habitats."

Global Importance

Plants are the basis for all life on Earth. Extinction weakens natural ecosystems and their ability to adapt, reduces the beauty and diversity of life, and depletes the irreplaceable gene pool that may hold the keys to

CLIFF WILLIS

Anukriti Sud (left) and Kayri Havens at the Dry Streambed Garden. Specimens of the rare heart-leaved plantain,* Plantago cordata*, are growing at their feet.

cures for cancer, ending world hunger, or controlling agricultural pests. The Missouri Botanical Garden is proud to be a part of the Center for Plant Conservation and its effort to prevent any further extinctions of our native American plant species.

Friends of CPC

For more information on the Center for Plant Conservation or the Friends of CPC program, please call (314) 577-9450.

Plants in the CPC National Collection at the Missouri Botanical Garden

(• Indicates species on display)

• **Ouachita leadplant**
Amorpha ouachitensis
Grows in front of the Emerson Electric Co. Conservation Center. Blooms late April, May, early June, fruit in mid-August.

• **Price's potato bean**
Apios priceana
Grows in the Scented Garden and in front of the Conservation Center. Blooms in early August, fruit in late October.

Small rockcress
Arabis perstellata spp. *perstellata*

Cumberland sandwort
Arenaria cumberlandensis

Pyne's ground plum
Astragalus bibullatus

• **Decurrent false aster**
Boltonia decurrens
Grows in the English Woodland Garden and in the Experimental Prairie at Shaw Arboretum. Blooms in early September, fruit in mid-October.

• **Ofer hollow reedgrass**
Calamagrostis porteri spp. *insperata*
Grows on the west side of the Shoenberg Administration Building. Blooms in late June.

Sandgrass
Calamovilfa arcuata

• **Tennessee coneflower**
Echinacea tennesseensis
Grows in front of the Conservation Center, at the Dry Streambed Garden, and in the Whitmire Wildflower Garden at Shaw Arboretum. Blooms from late June until frost, fruit from July until frost.

• **Lucy Braun's eupatorium**
Eupatorium luciae-brauniae
Grows in pots displayed on Spoehrer Plaza. Blooms in late August, fruit in late October.

Missouri bladderpod
Lesquerella filiformis

Globose bladderpod
Lesquerella globosa

Spring Creek bladderpod
Lesquerella perforata

Stones River bladderpod
Lesquerella stonensis

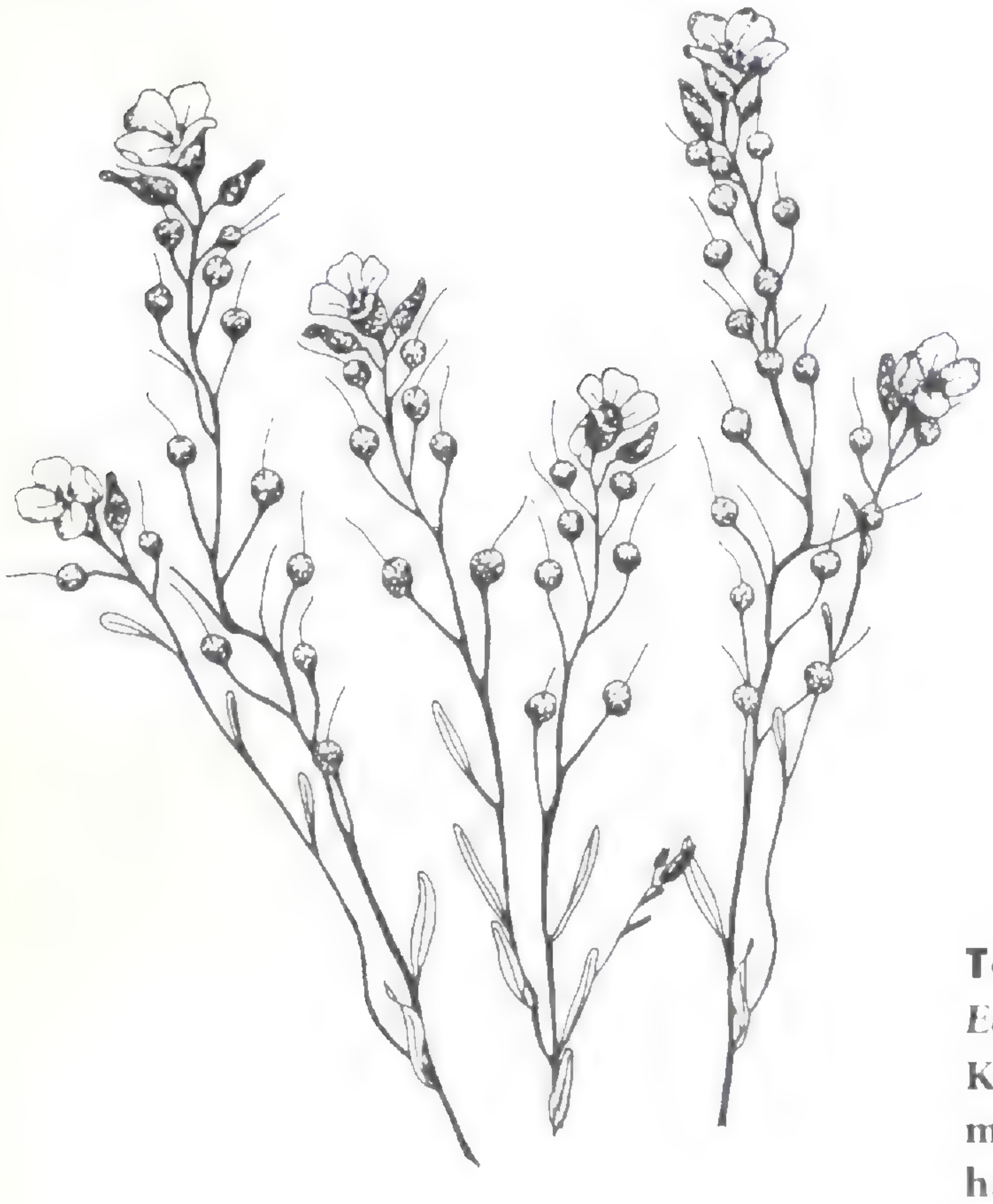
Pondberry
Lindera melissifolia

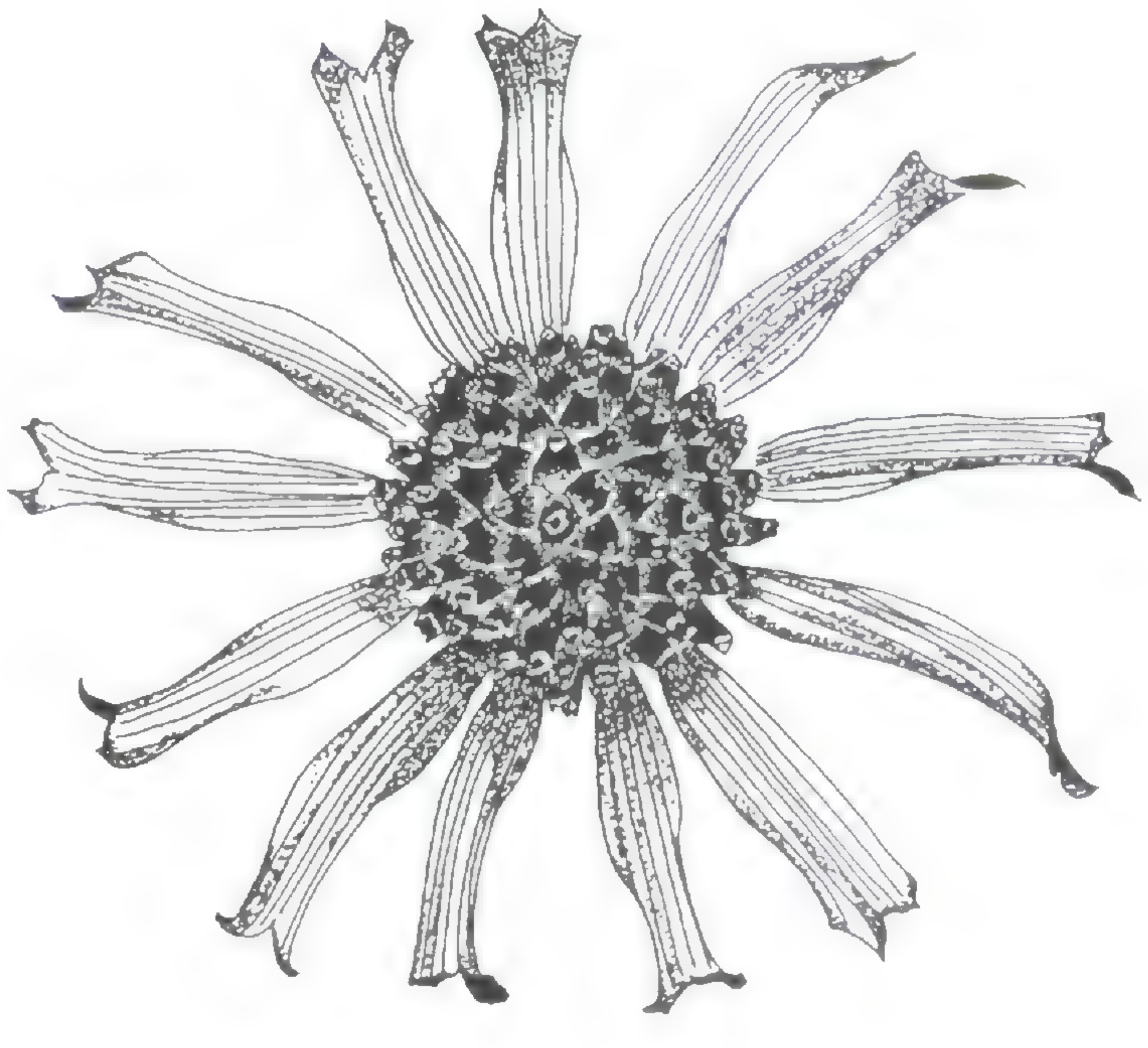
• **Ouachita mountain goldenrod**
Solidago ouachitensis
Grows in the Dry Streambed Garden. Blooms in mid-September, fruit in November.

• **Short's goldernrod**
Solidago shortii
Grows in front of the Conservation Center. Blooms in September and October, fruit in late October and November.

Running buffalo clover
Trifolium stoloniferum

▼ **Missouri bladderpod**
Lesquerella filiformis
This species is restricted to a few glades in southwestern Missouri. It is our state's only endemic plant species, meaning that it occurs only in Missouri and nowhere else on Earth.





Tennessee coneflower ▲
Echinacea tennesseensis
Known from only ten cedar glades, all within ten miles of Nashville, Tennessee. This unusual habitat supports a variety of rare species and is threatened by the expansion of the Nashville metropolitan area.

Home Gardening

WATER CONSERVATION AND LOW MAINTENANCE GARDENING

No matter how enthusiastic we may be about gardening, there are times when we all wish our yards were maintenance-free. What is low maintenance to one person may not be to another, but good planning can help make the most of your investment of time and money in your garden.

Let's face it, watering is one of the biggest chores during the growing season. "Xeriscaping," a term trademarked by the National Xeriscaping Council, refers to planting for water conservation. The principles of landscaping for water conservation go hand in hand with low maintenance and wise use of fertilizers, pesticides, and other resources. Low maintenance landscapes need not be envisioned as a bunch of rocks and desert plants; it should *not* be looked upon as "zero-scaping."

Plan & Design

Begin by considering how you will use your yard. What areas will you actually walk on, play on, and use? Outline your property boundaries and major structures on paper. Note the problem areas: views you wish to hide, steep areas where nothing seems to grow, low spots with poor drainage, lawn areas that you have seeded without success, heavy shade under trees, windy areas, and sunny, hot spots. All of these areas will need soil improvement, restricted plant selection, extra water, and more care.

Minimize Turf Areas

The biggest consumer of water, fertilizer, pesticides and energy is the lawn. A lawn mower emits as many hydrocarbons in an hour as an average American car does in 11.5 hours. Clearly we need to rethink our obsession with vast green spaces of perfect turf.

Without doubt, lawns consume more water than the rest of the landscape. Consider converting some of the lawn into groundcover, mulched beds, native grasses, or a wildflower garden. In areas where you need a lawn, choose grasses that are more drought tolerant, then water, mow and fertilize less.

Recently there has been a lot of interest in buffalograss, a drought tolerant, warm-season prairie grass native to an area from northern Texas to southern North Dakota. It is well-adapted to the entire middle region of the United States. Buffalograss requires less mowing, watering, and fertilizing that other lawn grasses. It thrives in full sun and grows well in dry, clay, and compacted soils. It grows only five inches high and is wear-tolerant.

Still, buffalograss might not be for everyone. Similar to zoysia, it goes dormant after the first fall frost and doesn't do well in shade. Once thought to be only for well drained sites, buffalograss was one of the big suprise suvivors of the 1993 flood, although you would not want to plant it in a wet site. It will work well as a slope stabilizer and in areas that you don't water, mow or fertilize often. The next most drought-tolerant grass is zoysia, followed by tall fescue, perennial rye, and the water hog of all, bluegrass.

Improve the Soil

Healthy plants are more tolerant of adverse conditions, including drought stress, pests and diseases. Soil has a lot to do with keeping plants healthy, but you should not approach your landscape as if it all has to be plowed under or excavated. Have your soil classified for percentages of sand, silt and clay. The Center for Home Gardening can help you with this. An ideal loam soil has 20 percent sand, 40 percent silt, and 40 percent clay. If yours turns out to be less than optimum, there are two low maintenance options: improve the soil by incorporating organic matter, or choose plants suitable for the existing soil, moisture, and light conditions.

All plants will do better with a little compost mixed in to improve the soil. It promotes a deeper root system, which means increased drought tolerance.

For a regional directory of Plant Societies at the Garden, please see page 21.

Mulching

This is the real key to water conservation in your yard. A layer of mulch will cool the soil, reduce weeds, and help capture and hold rainfall. Mulch the lawn with a surface dressing of compost every spring.

Two or three inches of compost, leaf mulch or wood chips will do the trick. If weed pressure is heavy, increase the mulch to five inches, and if weeds manage to make it through this barrier, just spot spray with glyphosate or Roundup. The herbicide will kill the root systems of most susceptible weeds, limiting the possibility of resprouting. Avoid using black plastic as a weed barrier in landscape beds. It will assist with weed control, but unless you poke a lot of holes in the plastic, it will not provide an even distribution of rainfall.

Irrigation Systems

No matter how well planned, every landscape will need some supplemental watering. If you're tired of seeing your water bill double or triple every summer, consider the ecological approach.

Thunderstorms may bring relief to drought stricken plants, but most of the water runs off the surface. A quarter-inch rainfall on a 1,000-square-foot roof will yield more than 150 gallons of rainwater. Systems to catch this water in a barrel or series of barrels under a downspout equipped with an overflow valve are available by mail order. You can see a system of this type in use at the Kemper Center for Home Gardening. A hose or extended downspout can deliver the stored rainwater to plantings. Pumps driven by solar energy are available, if you need to deliver water hundreds of feet away or create enough pressure to operate soaker hoses.

Trees, Shrubs and Perennials for Low Maintenance Landscapes

Trees

Golden-rain tree	*Koelreuteria paniculata*
Black gum	*Nyssa sylvatica*
London planetree	*Platanus × acerifolia*
Silver linden	*Tilia tomentosa*
Shadblow	*Amelanchier canadensis*
Fringe tree	*Chionanthus virginicus*
Kousa dogwood	*Cornus kousa*
Carolina silverbell	*Halesia carolina*
Amur cork tree	*Phellodendron amurense*
Japanese tree lilac	*Syringa reticulata*
Canadian hemlock	*Tsuga canadensis*
Smokebush	*Cotinus coggygria*

Perennials

Yarrow	*Achillea filipendulina*
Butterfly weed	*Asclepias tuberosa*
Mountain bluet	*Centaurea montana*
Threadleaf coreopsis	*Coreopsis verticillata*
Purple coneflower	*Echinacea purpurea*
Cushion spurge	*Euphorbia epithymoides*
Blanket flower	*Gallardia × grandiflora*
Daylily	*Hemerocallis* sp.
Wild bergamot	*Monarda fistulosa*
Sundrop	*Oenothera fruticosa*
Missouri evening primrose	*Oenothera macrocarpa*
Beardtongue	*Penstemon digitalis*
Perennial salvia	*Salvia × superba*
Goldenrod	*Solidago* sp.

TELEPHONE HELP

The Garden has several telephone services available to assist you.

GardenLine 577-9400

24-hour recorded information about Garden events, hours, admission and directions. Outside area code 314, call **1-800-642-8842** toll free, 24 hours a day.

Horticultural Answer Service (314)577-5143

Monday through Friday, 9:00 a.m. to noon, Master Gardeners are on hand to answer your gardening questions.

Master Composter Hotline (314) 577-9555

9:00 a.m. to noon, Monday through Friday. Specially trained Master Gardeners are on hand to answer your questions about yard waste management techniques. After hours leave a message and your call will be returned. The Master Composter program is supported by the Monsanto Fund.

HortLine (314) 776-5522

24-hour recorded gardening information is available with a touch tone telephone. You will need a brochure listing the hundreds of HortLine topics in order to use the service; you may request a brochure by calling the Kemper Center for Home Gardening at (314) 577-9440, 10 a.m. to 4 p.m. daily, or send a stamped, self-addressed envelope to HortLine, Kemper Center for Home Gardening, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

You can install underground or above-ground plastic pipes at low cost. Soaker hoses are excellent for deep watering when planting beds are covered with wood chips or coarse mulch. Soaker hoses, often made from recycled tires, have thousands of holes per square inch that leak water slowly, the best way to maximize water usage by plants. Drip irrigation systems with spaghetti-like tubes branching from a main hose can be used for trees and shrubs, concentrating the delivery to the root zone extending past the drip line of the foliage. Electronic timers can be hooked up to all of these systems of pipes or hoses.

The initial investment in an irrigation system will pay off over time by substantially reducing your summer water bill. This can amount to hundreds of dollars annually, depending on your watering needs.

Plant Selection and Maintenance

The next step is to select plants for low maintenance. Seek water-wise plants that are native to the area or exotics adapted to the climate. These plants are already adapted to survive without higher maintenance and care. Whether you use native or introduced species, group them by the amount of water they will need.

South and west exposures are likely to be the hottest, so plan to use fairly drought-tolerant plants with some type of irrigation in these locations. East and north sites are usually less exposed to direct sun and can accommodate plants that are less drought-resistant. Don't group heavy drinkers next to drought-tolerant plants, as there is a good chance that neither will do well. Plants that require more water should go in areas where water is plentiful and soils are amended well with organic matter.

No plant is maintenance-free, but selecting plants to match the site conditions will reduce watering, pruning, fertilizing or staking. Also consider the specific characteristics of each plant. Does it set seed and generate seedlings? Does it require deadheading? Will it spread by rhizomes? Will it require frequent pruning? Are the fruit messy? Also, no plant is totally immune to problems caused by insects and diseases, but hardy, healthy plants can tolerate more adversity.

— Steven D. Cline, Ph.D.
Manager, Kemper Center for Home Gardening

The William T. Kemper Center for Home Gardening is open 10 a.m. to 4 p.m. daily. Admission is free with regular Garden admission. For information on classes and activities at the Center, please call (314) 577-9440.

The Plant Doctor is available at the Kemper Center for walk-in consultations from 10 a.m. to noon and 1 to 3 p.m. Monday through Saturday.

Call HortLine for recorded gardening information 24 hours a day! For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

Calendar

continuing

may 1 - 19

Exhibit: "Les Petites Dames de Mode"

10 a.m. to 4 p.m. daily, Tower Grove House. Forty exquisite mannequins dressed in miniature Victorian and Edwardian fashions are displayed throughout Henry Shaw's country home. **Tour admission:** $3 members, $5 non-members; for children ages 6 to 12, $.50 for children of members, $1.50 for non-members. **Tour & Tea** will be offered from 1 to 3 p.m. each Tuesday, Wednesday and Thursday during the exhibit, by reservation only: $12 members, $15 non-members; for children ages 6 to 12, $3children of members; $5 non-members . Please call (314) 577-5150 to make reservations.

may 1 - 26

monday - friday

Exhibit: "The Best of National Geographic"

9 a.m. to 5 p.m. daily, Monsanto Hall, Ridgway Center. A major travelling exhibition of 50 of the greatest photographs from the last 100 years of the National Geographic Society will be displayed. The 50 photographs, by some of the world's finest photographers, were selected from a group of 100 photos originally displayed at the Society's headquarters in Washington, D.C. The exhibition accompanies publication of a landmark book, *National Geographic: The Photographs*. Exhibit is free with Garden admission.

may 26 friday *Rose Evening*

5:30 to 8:30 p.m., grounds. The annual celebration of America's favorite flower features the lovely Gladney and Lehmann Rose Gardens. Horticulture staff will be available to answer questions on rose care. The celebration includes music, cash bar, and an optional buffet supper, available by reservation only. Watch your mail for a special invitation. For members only.

may 6 & 7 saturday & sunday

Orchid Society Show

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. Magnificent blooms on display by the Orchid Society of Greater St. Louis. Free with Garden admission.

may 12 friday

"Tails of Spring," A Mother's Day Garden Party

Noon, under the outdoor tent. Luncheon and a fashion show by Famous-Barr. $40 members, $50 non-members. Please call 577-9500 for last-minute reservations.

may 13 saturday

O'Fallon Iris Society Show

Noon to 5 p.m., Orthwein Floral Hall. A juried show of beautiful blooming plants. Free with Garden admission.

may 14 sunday

Iris Society Show

Noon to 5 p.m., Orthwein Floral Hall. A juried show of blooms in a rainbow of colors, by the Iris Society of Greater St. Louis. Free with Garden admission.

may 20 & 21 saturday & sunday

Horticulture Society Show

Noon to 5 p.m. Saturday; 9 a.m. to 5 p.m. Sunday, Orthwein Floral Hall. A juried exhibition of vegetables, flowers and more. Free with Garden admission.

Dahlia Society Plant Sale

9 a.m. to 5 p.m. daily, Ridgway Center. Shop early for the greatest selection of these popular plants, offered by the Dahlia Society of Greater St. Louis. Free with Garden admission.

may 27 & 28 saturday & sunday

Rose Society Show

Noon to 5 p.m. Saturday; 9 a.m. to 5 p.m. Sunday. (Note: Show does NOT run through Monday, Memorial Day.) Continue the celebration of roses with this annual juried show presented by the Rose Society of Greater St. Louis. Free with Garden admission.

may 29 monday

Summer Hours Begin

9 a.m. to 8 p.m. daily through Labor Day. Garden grounds will be open for evening enjoyment.

june 5 monday

Plant Clinic

10 a.m. to noon, Kemper Center for Home Gardening. Receive on-the-spot diagnosis of plants, pests, and problems from Master Gardeners and other experts. Free with Garden admission.

The Bosman Twins

june 7 wednesday

Jazz in June

7:30 p.m., Cohen Amphitheater. Our popular outdoor concert series returns, featuring some of the area's finest jazz bands. Lawn seating; blankets and lawn chairs are encouraged. Picnic suppers are permitted, and a cash bar will be available. **Please note:** alcoholic beverages and glass containers may not be brought onto Garden grounds. In case of rain, cancellation of the evening's concert will be announced by 3 p.m.; concerts will not be rescheduled or moved indoors. Tonight's concert features "The Jazz Edge," a 20-piece orchestra with vocalists. Concert admission is $3 for members, $5 for non-members.

june 10 saturday

Iris Society Show

Noon to 5 p.m., Orthwein Floral Hall. The Iris Society of Greater St. Louis offers another opportunity to see a splendid array of beautiful blooming irises. Free with Garden admission.

june 14 wednesday

Jazz in June

7:30 p.m., Cohen Amphitheater. The smooth sounds of "After Six Jazz" featuring Linda Presgrave on piano, with Leanne Butts on bass, Charles Payne on drums, Randall Holmes on trumpet and Elmer Feltner on saxophone. See June 7 for details.

june 17 & 18

saturday & sunday

Lily Society Show

Noon to 5 p.m. Saturday; 9 a.m. to 5 p.m. Sunday, Orthwein Floral Hall. The Mid-America Regional Lily Society presents its annual juried show. Free with Garden admission.

june 19 monday

Plant Clinic

10 a.m. to noon, Kemper Center for Home Gardening. See June 5 for details.

june 21 wednesday

Jazz in June

7:30 p.m., Cohen Amphitheater. "Ain't Just Whistling Dixie" features jazz from the early days of the 1920s to the big band era to today. See June 7 for details.

Members' Days

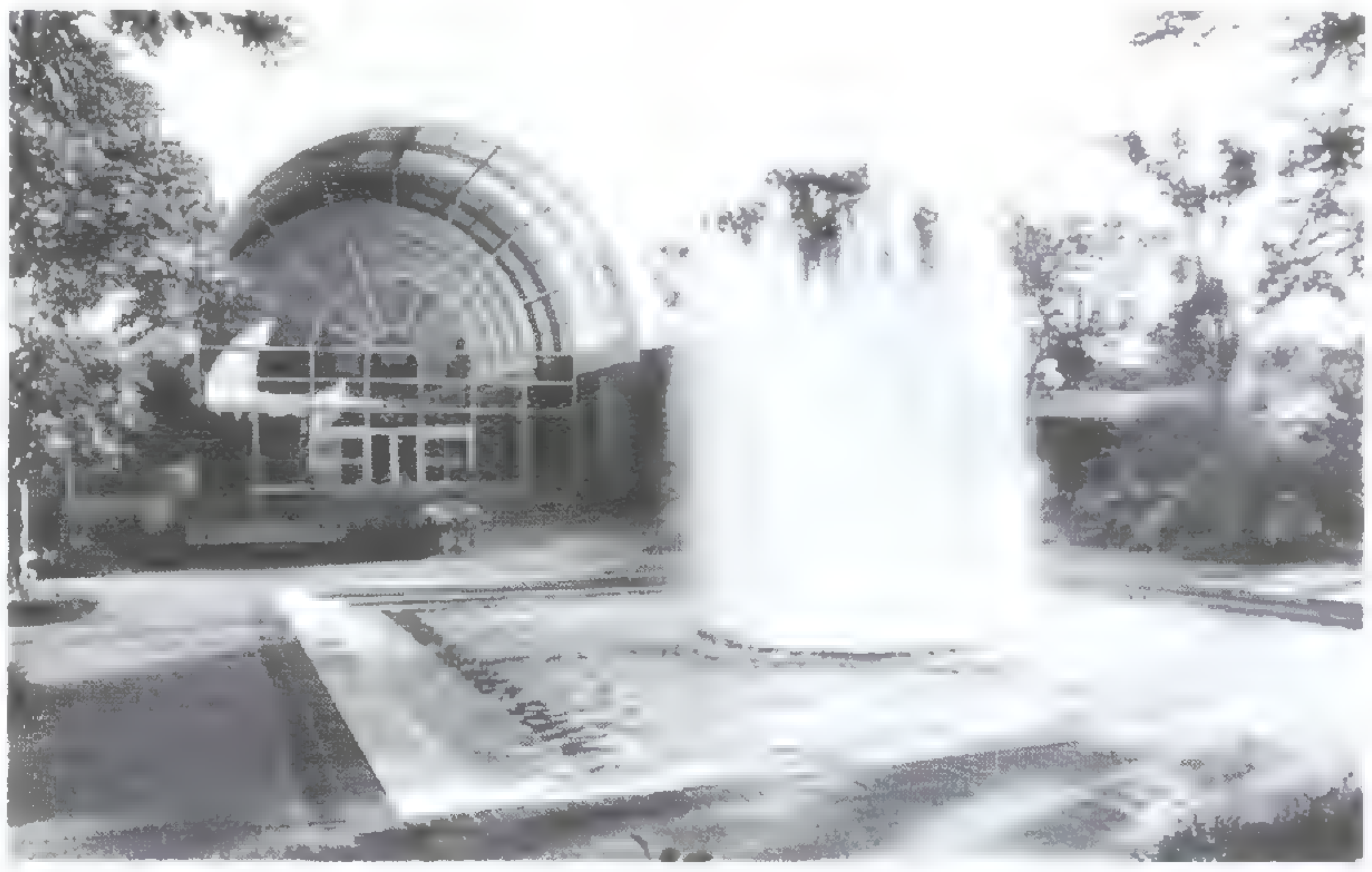
may 17 wednesday

Moonlight Stroll

9 p.m. to 11 p.m., grounds. Bring a flashlight to guide your way and enjoy the Garden by the light of a beautiful spring moon. Cash bar. Free, for members only.

Optional Buffet

6 p.m. to 9 p.m., Gardenview Restaurant. Before you stroll the Garden in the moonlight, enjoy a sumptuous buffet supper. $10.95 per person, with open seating. No reservations.



june 23 friday

Members' Musical Evening

5:30 to 9 p.m., Spoehrer Plaza. Concert begins at 7:30 p.m. The Gateway City Big Band returns with music of the1940s. Bring a picnic supper if desired, and lawn chairs or blankets for seating. Cash bar. Limited concert seating is provided on a first-come, first-served basis. Free, for members only.

june 25 sunday

Daylily Society Show

Noon to 5 p.m., Orthwein Floral Hall. The West County Daylily Society presents a colorful juried exhibition of these popular summer flowers. Free with Garden admission.

june 28 wednesday

Jazz in June

7:30 p.m., Cohen Amphitheater. "Le Jazz Hot" featuring Bensid Thigpen, Kim Mixon, Percy James, Chad Evans, and Ptah J. Williams. See June 7 for details.

every day

Free Walking Tours

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a fascinating tour of the Garden. Free with regular admission.

wednesdays & saturdays

Garden Walkers' Breakfast

7 a.m., grounds. In cooperation with the American Heart Association, the grounds open early every Wednesday and Saturday morning to encourage fitness walking. Greenhouses open at 9 a.m. Breakfast is available for purchase in the Gardenview Restaurant, 7 to 10:30 a.m.

Members

MABEL & BOB MACCASH
TIMMIE & JIM WIANT

CLIFF WILLIS

Members' Grand Opening

"Follow the Yellow Brick Road"
to the Kemper Center for Home Gardening
Saturday, June 17, 1995 — 11 a.m. to 3 p.m.
Public opening on Sunday, June 18, 1995

All Garden Members are invited to celebrate the grand opening of the Members' Entry Court, the entrance that will welcome all visitors to the William T. Kemper Center for Home Gardening. The generosity of Garden members and the Members' Board has made this lovely feature possible. The festivities will feature:

Showings of *The Wizard of Oz*
11 a.m. to 1 p.m. and 1:15 p.m. to 3 p.m.
Shoenberg Auditorium

Meet Mickey Carroll, one of the Munchkin stars from the original movie

Meet Dorothy, Tin Man, Lion, and Scarecrow

Enter the Drawing for a Personalized Brick
A $300 value, to be placed in the Entry Court path, plus drawings for videos of *The Wizard of Oz* and the Garden's new Gardening video

Music by the popular "Dixieland Stompers" Band

Plus — Free Lollipops!

Thank You to Our Sponsors

GardenExpo

We are very grateful to the sponsors who helped to make GardenExpo 1995 such a success:

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St. Louis Post-Dispatch

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Members' Free Admission to Botanical Attractions

When planning your summer vacation, be sure to call the Membership Office at (314) 577-9500 to request a list of arboreta, botanical gardens, and conservatories that offer free reciprocal admission and additional benefits to members of the Missouri Botanical Garden. Published annually by the American Horticultural Society, the list includes dozens of beautiful locations throughout the United States and Canada. Don't forget to take advantage of this free benefit of Garden membership!

If You Would Like to Have a 1994 Annual Report...

The 1994 Annual Report of the Missouri Botanical Garden is available on request. Please call the Development Office at (314) 577-5120 and a copy will be mailed to you. You may pick up a copy in person at the Shoenberg Administration Building, 2345 Tower Grove, or at the Public Relations Office in the Ridgway Center, 4344 Shaw Boulevard.

Tribute Bricks

The following Tribute Bricks have been donated to the Entry Court of the William T. Kemper Center for Home Gardening. Names of the donors appear below, after the name engraved on each brick:

A. K. Baker & Ethel Knatz
Anne Baker

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Mrs. William Berberich, Jr.

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Mr. and Mrs. Richard E. Beumer

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Eileen Hennessy

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Star Newbold
James R. and Starlett G. Newbold

Pearl Newcomer
Robert E. Newcomer

Erika Ann Olson
Michael S. Olson

Manford Olson
Michael S. Olson

Olive Olson
Michael S. Olson

Theresa G. Olson
Michael S. Olson

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Michael S. Olson

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Sylvia and Louis Richter
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Hawk – Ruchte
Judith L. Ruchte

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Roberta Bunn, Dixie Cuba, Janis Gates, and Robert E. Wagner

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Michael S. Olson

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Johnnye L. Werner

Elmer and Ann Whitehouse
Mr. and Mrs. Elmer Olges

Daniel Hardin Whittington
Mrs. D. H. Whittington

Alice Cain Williamson
James R. Williamson

Manuel and Minnie Wohl
Rosalie Zerman

GARDEN GATE SHOP

Mother's Day Is May 14

This May in the Shop you can choose from a wonderful selection of blooming plants in baskets, gardening books, Portmeirion china, special stationery sets, or jewelry just right for your Mom. There are terrific T-shirts and totes plus a wide variety of potpourris, handcreams, and sachets. Also be sure to see the wonderful Missouri Botanical Garden gourmet foods from Ces & Judy, featuring salsa, bean dip, chili con queso, flavored olive oils, barbeque sauce, and spices.

Father's Day Is June 18

For Dad, you will find a great assortment of garden tools, sundials, birdhouses, and windchimes. The Shop has an interesting selection of that old standby, the necktie, plus fascinating books including the new *Birds of the St. Louis Area: Where and When to Find Them*, by the Webster Groves Nature Study Society.

Everything's Coming Up Roses!

Capture the beauty of the roses blooming in the Garden with the wide variety of roses for sale in the Shop. To help care for your new roses, browse through the book department to find all the information you need. Smell like a rose with the many sachets, potpourris, and soaps available. And a delightful selection of cards, prints, T-shirts and jewelry are adorned with roses and waiting to be "picked" by you.

LEE WELLS

What *IS* This Stuff?
Teachers participating in "Great Explorations in Math & Science" (GEMS) this spring got a chance to experience "hands-on" activities in a whole new way. Hosted by the Garden's Education Division, the two-day workshop offered elementary school teachers new ways to captivate their students using "guided discovery" of scientific concepts. One of the activities involved studying the properties of the strange green slime shown here. The GEMS Program is presented by staff from the Lawrence Hall of Science at University of California at Berkeley. The Garden is using GEMS as a basis for its science outreach programs.

Geothermal Heating / Cooling System Installed at Shaw Arboretum

As part of the ongoing renovations to the Joseph H. Bascom Manor House at Shaw Arboretum, a new environmentally friendly climate control system was installed at the Manor House this spring. The new system is clean, quiet, efficient, and will use far less fossil fuel energy over the long term than conventional heating and air conditioning.

A geothermal system, also called a ground source heat pump, relies on an old idea: it utilizes the earth's natural constant temperature. Sunlight striking the earth is absorbed by the ground all year long. Moisture in the soil below the freeze line stores this energy, maintaining a constant temperature of 57 degrees F. Hibernating bears take advantage of this principle to keep warm in winter, and your grandparents may have used underground cellars or icehouses to store food and ice in summer.

Today, heating, cooling, and water heating account for about 72 percent of home energy use in the United States and Canada. Geothermal systems offer potential energy savings of 30 to 60 percent per year. Although the upfront costs of building a geothermal system are higher than for conventional heating systems, ground source heat pumps can provide up to three times more energy than they consume.

Ground source heat pumps should not be confused with conventional heat pumps, although they share similar names. Geothermal systems have only two components, a loop of buried pipes and an indoor unit connected to the ductwork. There is no outdoor unit at all, and the system can supply both heat and air conditioning all year long without a backup system.

In a geothermal system, a special environmentally safe antifreeze, a solution of 15 percent alcohol and 85 percent water, is circulated through a grid of buried pipes. The solution absorbs heat from the ground in winter and releases it into the earth in summer. Converters in the building transfer the temperature of the antifreeze solution to forced air, which is circulated through the ductwork in the house.

Drilling wells for the ground source system at the Manor House

The ground loops for a geothermal system can be installed horizontally or vertically, or even run under lakes or ponds. The system at the Manor House is a vertical system, chosen because it takes up the least space and is considered to be the most efficient configuration.

For the Manor House, 16 wells were drilled, each 175 feet deep, in an area only 250 feet in diameter and 75 feet from the house. The wells are just 15 feet apart; the pressure of drilling some holes sent geysers of water and mud spurting from the holes nearby. A continuous loop of hardened plastic pipe was installed in the wells and connected to three heat pump converters in the Manor House. The drilling and installation were handled by Hydro Source, a local contractor that put in a similar system at the EarthWays Home in St. Louis.

David Hicks of the Arboretum staff, who is in charge of the Manor House restoration, said, "We think this system will more than pay for itself in time, in terms of dollars as well as environmental costs. This system uses less fossil fuel than any fuel-consuming system yet devised. We hope it will serve as a model for others who are considering climate control systems in the future."

Henry Shaw Ozark Corridor

The 24-mile stretch of Interstate 44 from Gray Summit to the I-270 interchange is one of the most beautiful routes into any city in America. Members of the Meramec River Recreation Association and the St. louis chapter of the American Society of Landscape Architects have named the route the Henry Shaw Ozark Corridor (HSOC) and have formed the HSOC Association and HSOC Foundation to protect and restore the area.

The HSOC includes parts of St. Louis, Franklin, and Jefferson counties, six communities, and 15 natural areas including state, county, and city parks, plus 40 miles of the Meramec River. A management plan developed for the area by the HSOC Association calls for community involvement in preserving undeveloped green space, restoring native plants, promoting recreation such as hiking, bird-watching, canoeing and fishing in the area, and restoring historical landmarks. Copies of the plan are available at Shaw Arboretum, Powder Valley Nature Center, and Fenton Community Center.

John Behrer, manager of Shaw Arboretum, has been elected to the board of the HSOC Foundation. He is particularly interested in collaborating with the HSOC to restore Jensen's Point, a stone lookout structure on Highway 66 east of Pacific. It was built as a tribute to Lars Peter Jensen, the first manager of the Arboretum.

The idea for the HSOC was inspired by the efforts of the late Albert P. Greensfelder, who began a beautification project along the same corridor in 1940. The Garden's Greensfelder Award, established in 1980 in memory of Albert P. and Blanche Y. Greensfelder, honors individuals who have made substantial contributions to promote a better environment through conservation and urban improvements. Mr. Greensfelder named the area along Highway 66 in honor of Henry Shaw; plaques and other relics can still be found in the area that commemorate the "Henry Shaw Gardenway." — *From material prepared by Carol Davit*

Studying Plants in Chile

Spectacular scenery in Torre del Paine National Park

A GARDEN-SPONSORED NATURAL HISTORY tour to southern Chile in January offered 18 explorers the opportunity to study the rich and varied plant and animal life of an exceptional region. While in Chile, the group visited a private garden in Santiago and walked through rich temperate rain forests of southern beech trees covered with mosses and ferns. They also observed the rare Alerce trees, southern hemisphere evergreen trees that are endangered by logging. Hikes to the top of volcanoes offered spectacular scenic views and provided opportunities to photograph stunningly beautiful and colorful alpine plants.

A real highlight of the trip was a visit to Punta Arenas, a lovely town on the Straits of Magellan. After a bus ride north, the group spent a number of days in the Torre del Paine National Park, a natural area dominated by glaciers, lakes, massive granite mountains, and rolling hills covered with low, dense, shrubby forests. At the park they were able to observe Andean condors soaring overhead, herds of guanacos, and hundreds of other birds and mammals. The trip to southern Chile was topped off with a visit to a colony of Magellanic penguins.

Watch for details on upcoming natural history trips sponsored by the Missouri Botanical Garden, including tours of Peru and the Amazon forest, the Galapagos Islands, and South Africa. Our trip to western Australia (below) is accepting reservations now.

Arboretum Seeks Volunteers

WOULD YOU ENJOY working with interesting people in a beautiful setting, learning more about the natural world? Do you have some time available during weekdays? Shaw Arboretum is looking for enthusiastic, committed people to join as volunteers in either education or horticulture.

The education volunteer, known as a teacher-naturalist, will teach activity-based outdoor classes to school children, focusing on sensory awareness and ecology. A training program for new teacher-naturalists will begin in September. People seeking this position must enjoy working with children, especially in an outdoor setting; be flexible with a variety of teaching conditions; and possess a keen interest in learning more about natural history. Some knowledge of ecology and natural history would be helpful, but it is not necessary.

Volunteers in horticulture are involved in a variety of activities centered around growing native Missouri plants. Work takes place in either the greenhouse or outdoors, especially in the Whitmire Wildflower Garden. Interested volunteers must enjoy gardening and have a desire to learn about native plants; be patient and detail-oriented; and be willing to get dirty and work in varying weather conditions.

The rewards are many! For more information call Miriam Krone, Arboretum volunteer coordinator, 451-3512.

GARDEN TRAVEL PROGRAMS 1995

Natural History Down Under: Wildflowers and Wildlife of Western Australia

September 9 – 24, 1995

RESERVATIONS ARE BEING ACCEPTED for an exceptional travel opportunity. Join Dr. Larry DeBuhr, director of education, and Dr. Nancy Morin, assistant director of the Garden, both of whom have studied plants in western Australia, to explore a region that offers one of the greatest displays of wildflowers and unusual animals on Earth. The flora of this corner of the driest continent reaches its peak of spring bloom in September.

The tour starts with a morning visit to the Royal Botanic Garden in Sydney and an afternoon cruise around Sydney Harbor. The following day the tour visits the Blue Mountains, with their splendid scenery, dramatic cliffs, deep fern-filled canyons, and eucalyptus forests. A walk along the Wentworth Falls Track and a visit to the famous rock garden at Mt. Tomah Botanic Garden are included.

The following five days will be spent exploring the sand plains, coastal bluffs, granite outcrops, mountains and forests north of Perth. As the tour journeys up the west coast, the sights will include thousands of magnificent wildflowers in splendid bloom, kangaroos hopping through the bush, and dozens of unusual species of birds,.

In the lush southwestern region, rainfall during the winter exceeds 40 inches a year. The rich eucalyptus forests of the south coastal areas harbor terrestrial orchids, paperbark swamps, black swans, emus, kangaroos, bush marsupials and the giant karri tree forests, with some trees towering 285 feet above the ground.

The tour will visit the Stirling Mountain Range, the highest in western Australia. It is home to hundreds of wildflower species, 80 percent of which are found nowhere else on Earth. In addition, scarlet robins, white-tailed cockatoos, wedge-tailed eagles and New Holland honey creepers may be seen.

This exciting adventure brings the natural history enthusiast to one of the Earth's exceptional natural areas. Local natural history guides will accompany the group at all points in western Australia. Extensions to New Zealand, New Guinea, Tasmania, or other areas in the South Pacific can also be arranged. For additional information, please call Aventure Travel at (314) 863-7474 or the Missouri Botanical Garden at (314) 577-5140.

The Master Gardener Program

The extraordinary men and women who volunteer as Master Gardeners make it possible for the Garden to deliver its wide range of services to the community. This article was prepared with the assistance of Master Gardener Ann Case. — Editor

The Master Gardeners Program is a national program that was founded in 1972 as a joint effort by members of the Washington State Extension Service. The St. Louis Master Gardener program was organized in 1982 as a joint program between the Garden and University of Missouri Extension. This arrangement has allowed the Master Gardeners to draw on the strengths of both organizations and has greatly enhanced volunteer training and community outreach.

Admission to the St. Louis Master Gardeners is very competitive and the training is demanding. Master Gardeners who have completed Advanced Training have spent 90 hours in class. In return for the instruction, they must give a minimum of 100 hours of volunteer service. Master Gardeners work with the Horticultural Answer Service, the Kemper Center for Home Gardening, the Plant Doctor desk, the Samuel D. Soule Center for Older Adults, and Gateway to Gardening.

Marshall Magner

Within six months of retiring as senior entomologist for Monsanto in 1977, Marshall Magner became an Answer Man at the Garden, and he hasn't slowed down since. He was instrumental in helping to organize the Master Gardener program in St. Louis, was a member of the first Master Gardener class which graduated in February 1983, and was in the first Advanced Training classes. He has worked in most of the Master Gardener activities, led training sessions, and taught adult education courses. He currently works at the Plant Doctor desk and is helping the Education Division to inventory insects at the Litzsinger Road Ecology Center. Marshall was a member of the first Master Gardener Steering Committee and was Master Gardener of the Year in 1989. And he is permanently on call to help determine what is "bugging" our plants!

Marshall is a native St. Louisan and still lives on the property where he was born. He remains active in professional and scientific societies, holding local, regional and national offices, and has been honored with the Silver Beaver award by the Boy Scouts of America. He and Ernestine, his wife of 49 years, are avid travellers.

Monica and Fred Claper

Monica and Fred are the only husband and wife Master Gardeners in the St. Louis program. When Fred retired from the Olin Corporation, he wanted to stay in contact with people and saw gardening as a way to do it. He was accepted into the Master Gardener program in 1986 and completed his Advanced Training in 1988. He has worked with the Samuel D. Soule Center for Older Adults, the "Don't Bag It" demonstration lawn care program, and at the Kemper Center reception desk.

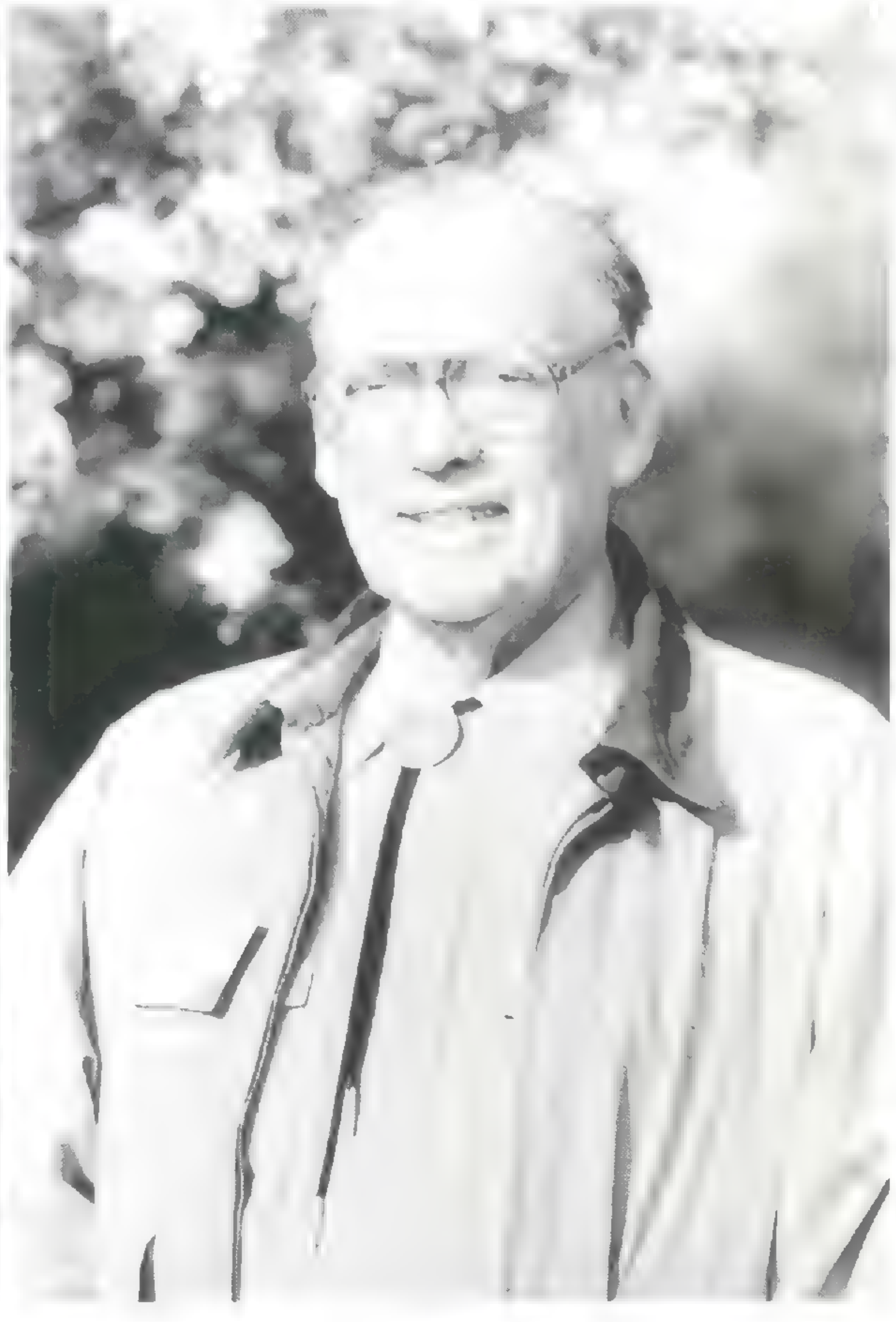
Monica decided to apply to be a Master Gardener to get away from the stress and strain of her job as a medical technician. She completed her Master Gardener Advanced Training in 1992 and works at the Plant Doctor desk in Kemper Center. In addition to being a Master Gardener, Monica is a Volunteer Instructor in the Garden's Education Division and currently is co-chairman of the Instructors.

Monica and Fred have lived in St. Louis for 31 years and have been married for 41 years. They are active in the community: Monica serves at Holy Redeemer Church on a committee that prepares and serves meals for sick or bereaved parishioners and Fred delivers for Meals On Wheels.

Linda Whitten

Linda and her husband Dale became members of the Garden even before they moved to St. Louis from Michigan in 1986. Linda had learned about the Master

From left: Becky Jones Fouke, W. Boardman Jones, Jr., Linda Whitten, Monica and Fred Claper



CLIFF WILLIS

Marshall Magner

Gardeners from friends in the Detroit area and was excited to learn that there was a program in St. Louis. She became a Master Gardener in 1988 and completed her Advanced Training in 1990.

Linda conducts classes for the Garden's Samuel D. Soule Center for Older Adults and for the Adult Education program. Because she used to be a caterer, she has made a specialty of using edible flowers in cooking and teaches classes with such titles as "The Essence of Flavor" and "Floral Gourmet." Linda grows most of the flowers she uses for her own cooking, to be sure they are free of pesticides, and delights her friends with her imaginative recipes.

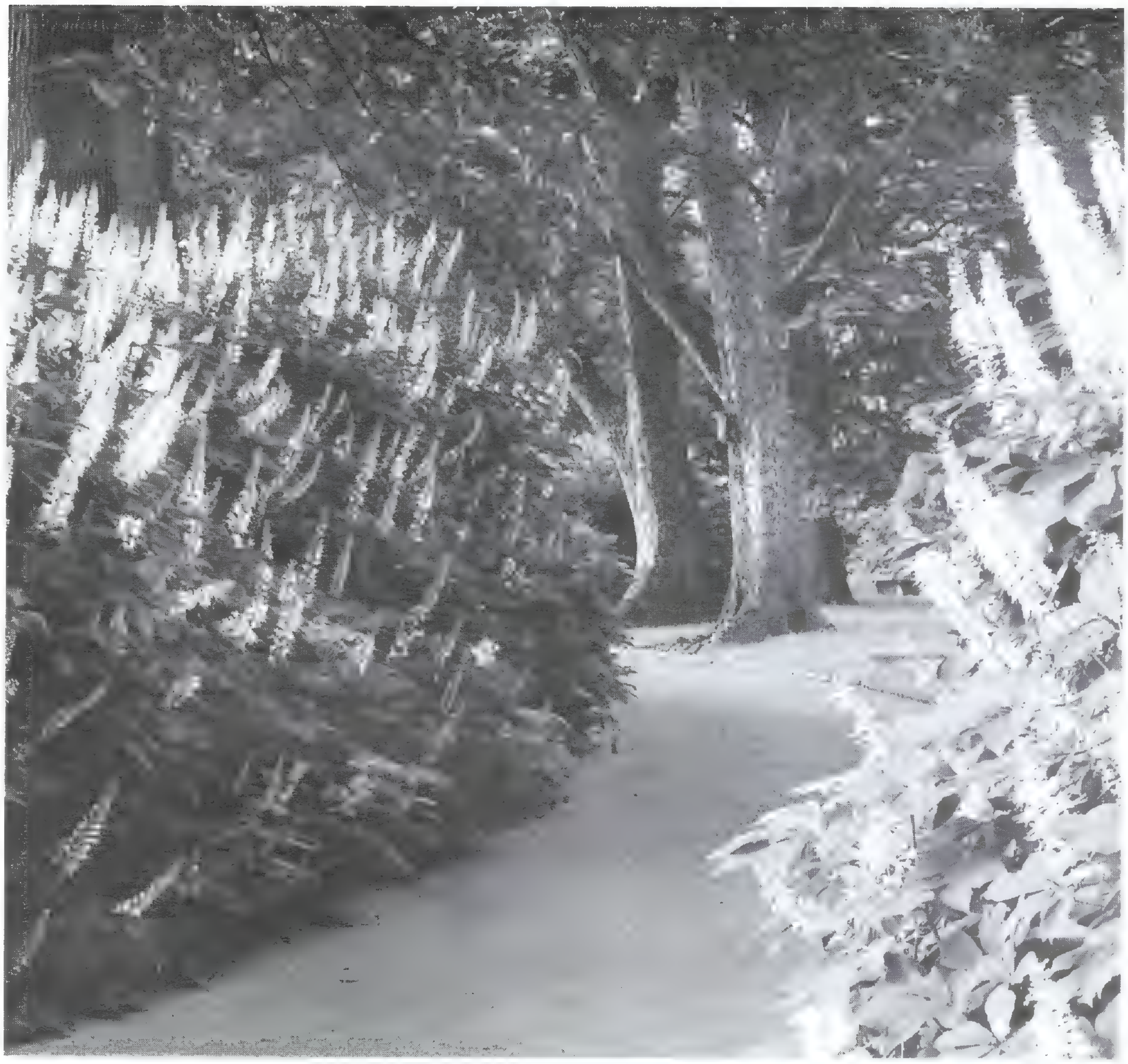
W. Boardman Jones, Jr. and Becky Jones Fouke

"Boardy" Jones and Becky Jones Fouke are a father-daughter team for the St. Louis Master Gardeners. Both currently serve at the Horticultural Answer Service.

After Boardy retired from a career in banking, he became a Master Gardener in 1987 and immediately began work at the Answer Service. He completed his Advanced Training in 1990. His main interests are vegetable gardening and houseplants. He says he became interested in vegetable gardening in 1965, when he bought some tomato plants on sale, stuck them into the ground, and they grew!

Becky studied art history in college and did not develop a real interest in gardening until about ten years ago. After learning about the Master Gardener program from her father, she decided to learn more about gardening and exchange information with other gardeners. She applied and was accepted as a Master Gardener trainee in 1991. In 1994, she received her Advanced Training certificate.

Becky and Boardy are native St. Louisans and are active community volunteers. Becky is a past president of the Garden Club of St. Louis and a representative to the Founders Fund of the Garden Club of America. She is involved with the Women's Society of Washington University and with the flower committee of the Church of St. Michael and St. George. Boardy has served on many community boards, most recently for the Central Institute for the Deaf and the Muny in Forest Park.



JACK JENNINGS

Have You Seen... *Bottlebrush Buckeye*

One of the more dramatic sights at the Garden in springtime is the bottlebrush buckeye, *Aesculus parviflora*. Also known as the dwarf horse chestnut, the species differs from its better known relative, the horse chestnut tree *Aesculus hippocastanum*, by its low, multi-stemmed, shrub-like habit. The stand grows on both sides of the path leading toward Tower Grove House from the Climatron, forming a thicket 130 feet long by 80 feet wide. When it blooms in late June or early July, the shrub displays the handsome, foot-long, upright panicles of fragrant white blossoms that are responsible for its name.

Bottlebrush buckeye is native to Alabama and Georgia but is fully hardy in St. Louis. It is an easy plant to grow, prefering a site similar to its native woods and stream bottoms with moist, humus-rich, acid soil in partial shade. However, it will adapt to most soil types as long as they contain sufficent organic matter, and will even tolerate full sun if it has adequate moisture.

A second clump of bottlebrush buckeye can be found east of the Kaeser Maze. This stand is a variant of the species, *Aesculus parviflora* var. *serotina*. Variety *serotina* blooms about two weeks later than the species, and its 18 to 24-inch long inflorescences have a curved, weeping habit that prompted one longtime member of the Horticulture staff to nickname the shrub "Snuffeluffagus" after the wooly mammoth from Sesame Street.

This grove is the source of *Aesculus parviflora* var. *serotina* 'Rogers', one of the most coveted horticultural varieties. A single seedling grown from nuts collected from this grove some years back by Prof. J.C. McDaniel of the University of Illinois yielded a plant with similar habit, but inflorescences up to 30 inches long. Only in recent years have cuttings from this garden treasure become available to the nursery trade. — *Chip Tynan, MBG Answer Service*

TRUSTEE PROFILE

Douglas B. MacCarthy

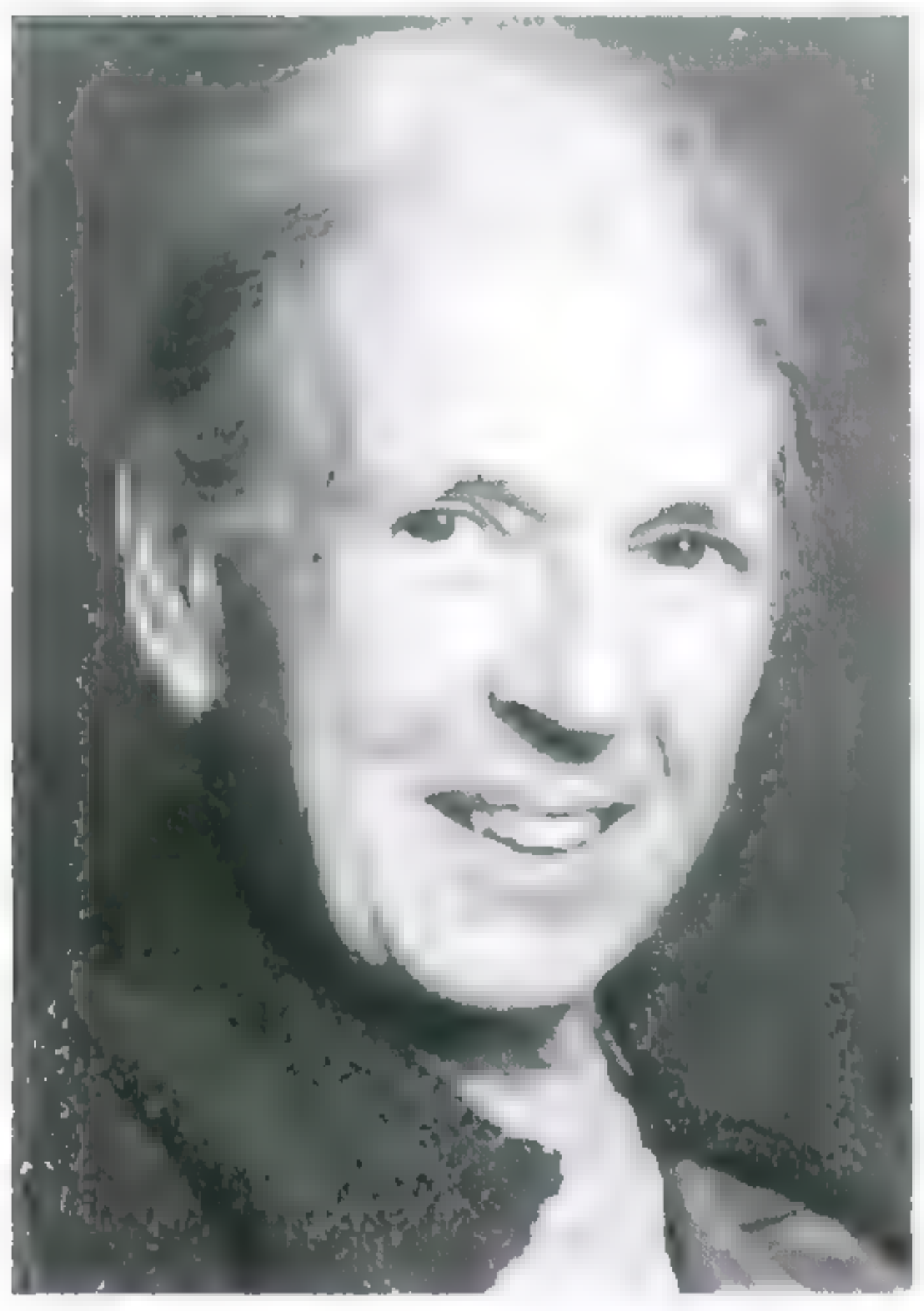
DOUGLAS BLANKE MACCARTHY was elected to the Board of Trustees of the Garden at its annual meeting on January 18, 1995. He is vice-president of Merrill Lynch & Co., associated with the Private Client Group in the Frontenac office.

Mr. MacCarthy has served the Garden as chairman of the Henry Shaw Committee since 1993 and as an active member of that committee since 1990. "I enjoy helping people decide what to do with their money," Mr. MacCarthy said. "My avocation of giving advice on making meaningful charitable gifts has been closely related to my vocation of giving advice on making successful investments. I derive a great deal of satisfaction from doing both."

Mr. MacCarthy, 62, is a native of St. Louis and a graduate of MICDS '50 and Princeton University '54. His parents are the late Minard and Janet MacCarthy. The garden at his home in Ladue was selected for inclusion in the Smithsonian archives of important 20th century American gardens.

Mr. MacCarthy is the past president of the Forum for Contemporary Arts, the Repertory Theatre of St. Louis, Missouri Citizens for the Arts, and the St. Louis Children's Hospital Development Board. He has served on the Missouri Arts Council, the Board of Trustees of the St. Louis Art Museum, and the Development Council of Princeton University. He is a member of the St. Louis Garden Club.

"Doug MacCarthy is a wonderful addition to the Board," said Peter H. Raven, director. "His commitment to the Garden and to St. Louis will help us to deal with the challenges that lie ahead for this institution. It has been a pleasure to work with him in his efforts on behalf of the Henry Shaw Committee, and we look forward to his increased involvement as a Trustee."



IN MEMORIAM

Mildred E. Mathias, Ph.D.

STAFF AND FRIENDS of the Garden were saddened by the death of Dr. Mildred Mathias in February, 1995. Dr. Mathias, who was 88, was one of the world's most distinguished and honored botanists and a former Honorary Trustee of the Garden.

Mildred Mathias earned her graduate and undergraduate degrees from Washington University, receiving much of her training in botany at the Garden. She was the Jessie R. Barr Fellow at the Henry Shaw School of Botany 1927-29 and worked as a post-doctoral research assistant at the Garden 1929-30, where she was responsible for the herbarium. She joined the faculty at the University of California, Los Angeles in 1947, where she was a professor of botany from 1962 to her retirement in 1974. After retiring, she continued to teach undergraduate biology courses and led nature study expeditions to the tropical forests of Africa, Central America, Australia, China, and New Guinea. She was the author of some 200 research papers, articles and books.

Dr. Mathias also was an active conservationist and horticulturist. She was president of the Organization for Tropical Studies and was a founding force behind the Las Cruces and Lankester Botanical Gardens in Costa Rica. She served as southern California president of the Nature Conservancy and as chair of the University of California Natural Reserve System. The botanical garden and herbarium at UCLA were named in her honor in 1979.

Charles E. Young, chancellor of UCLA, was quoted in the Los Angeles Times remembering Dr. Mathias as "a beloved faculty member and a distinguished scholar....The botanical garden that bears her name is a living legacy of her extraordinary achievements."

Science Instructor Joins the E. Desmond Lee and Family Education Program

EMMETT L. BURT joined the Garden's Education Division last fall as the outreach instructor for the E. Desmond Lee and Family Education Program. Emmett is working to implement an ambitious new initiative to improve science education in underserved St. Louis schools.

Emmett came to the Garden with extensive experience as an elementary school teacher in Nevada and California. He graduated with a B.A. in business administration in 1987 from Columbia College in Columbia, Missouri, and is working toward his Missouri teacher certification from Harris Stowe State College.

In the past few months, Emmett has been working closely with the Normandy school district in St. Louis to develop plans for implementing the Lee Education Program in the 1995-96 school year. Next fall he will be working with nine Normandy elementary schools, presenting science programs for teachers and students.

"This is a wonderful opportunity to expose these kids to science concepts," Emmett said. "The Garden's Education Division and the Lee Program are having a real impact on the way science is taught in elementary schools. Maybe the most exciting thing is to help the students and their teachers discover that science doesn't have to be hard to understand. If they aren't intimidated, they can get excited about learning!"

Creating a groundbreaking program from scratch is no easy task. The Garden has been a leader for several years in teacher training and science education, but the magnificent gift last spring from E. Desmond Lee and his family has made it possible for the Garden to begin to implement its programs on a much larger scale. Emmett is working with concepts developed by the GEMS Program (see page 15), which will be part of his outreach programs next fall.

"I'm glad to be able to be part of this program," Emmett said. "This year has been a big change for me, and I'm looking forward to getting back into the classroom next fall and seeing all our planning pay off. It's great to have a chance to help these students get excited about learning science."

Watch future issues of the *Bulletin* for ongoing developments with the E. Desmond Lee and Family Education Program.

Emmett L. Burt

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	*David Brown*	727-2385
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
East Central District Federated Garden Clubs of Missouri		
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Ikebana International		
Iris Society of Greater St. Louis	*Jim Loveland*	349-4977
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Carole Sebastian*	993-9270
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Sue Reed*	965-6813
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
West County Daylily Club	*Roy Bohrer*	240-8780

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Wednesdays
7:30 p.m.
Cohen
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See page 13
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June 7
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June 14
After Six Jazz

June 21
Ain't Just
Whistling Dixie

June 28
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A SUMMER JAZZ FESTIVAL

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1995

VOLUME LXXXIII
NUMBER FOUR

Comment

Missouri Botanical Garden Mission: "To Discover and Share Knowledge About Plants and their Environment, in Order to Preserve and Enrich Life."

During the course of the Partnership Campaign we have appealed to our members and friends to support the goals of our capital fundraising drive, and you have responded with extraordinary generosity. Recently we were able to say "thank you" in the best possible way, by unveiling some of the results of your support. In this issue we feature the recent dedication of the Joseph H. Bascom Manor House at the Shaw Arboretum and the grand opening of the Members' Entry Court at the William T. Kemper Center for Home Gardening, both made possible by gifts to the Partnership Campaign. A special pull-out poster in the center of this *Bulletin* acknowledges all of the donors who contributed to the Entry Court by Memorial Day. Welcoming the people of St. Louis to enjoy these wonderful new attractions is an enormous source of satisfaction to all of us who have worked together on the campaign, and once again I thank each and every one of you who helped make these new developments possible.

The Bascom Manor House will not be open to the public until next year, but visitors to the Garden can now enjoy nine of the outdoor demonstration gardens at the Kemper Center. Construction and planting will continue throughout the summer, and it is great fun to watch the gardens taking shape. The construction fences are gone; once again visitors can walk through to the Japanese Garden and delight in the beautiful new Flower Walk that has been planted along the path to the Kemper Center. And be sure to see the Manor House when you visit Shaw Arboretum for its splendid Native Plant Sale, scheduled for September 9; see page 13.

Summertime is time for families to enjoy the Garden together. Take a look at "Children's Gardening" in the Home Gardening feature on pages 8-9 for ideas you can use at home, and visit the Kemper Center for the Family Series of delightful activities listed in the Calendar on pages 10-11. Don't forget the annual Japanese Festival, three days of music, food, and entertainment on Labor Day weekend. And finally, all members are cordially invited to a gala benefit party featuring our new Chinese Garden, currently under construction near the Kemper Center gardens. We'll look forward to seeing you here for all the fun in the coming weeks.

— Peter H. Raven, Director

"Birth of the Muses" Is Dedicated

Friends of the late Gertrude and William Bernoudy joined Garden Trustees, members, and staff on May 10, 1995 to dedicate Jacques Lipchitz's bronze sculpture *Birth of the Muses*, given to the Garden by the estate of Mrs. Bernoudy in memory of her husband. Speakers at the dedication included Harry E. Wuertenbaecher, Jr., Eugene J. Mackey III, and Stuart Symington, Jr., representing the trustees of the Gertrude Bernoudy Foundation, who said, "Through the only gift of art Gertrude made to our community, we dedicate today a fitting memorial to [the Bernoudys'] love for the beauty of nature and the beauty of human creativity." *Birth of the Muses* stands in a grove of hollies beside the path southeast of the Climatron.

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On the Cover

The Milles Fountain Angels *are reflected in the water lily pools.*

Photo by King Schoenfeld

Editor

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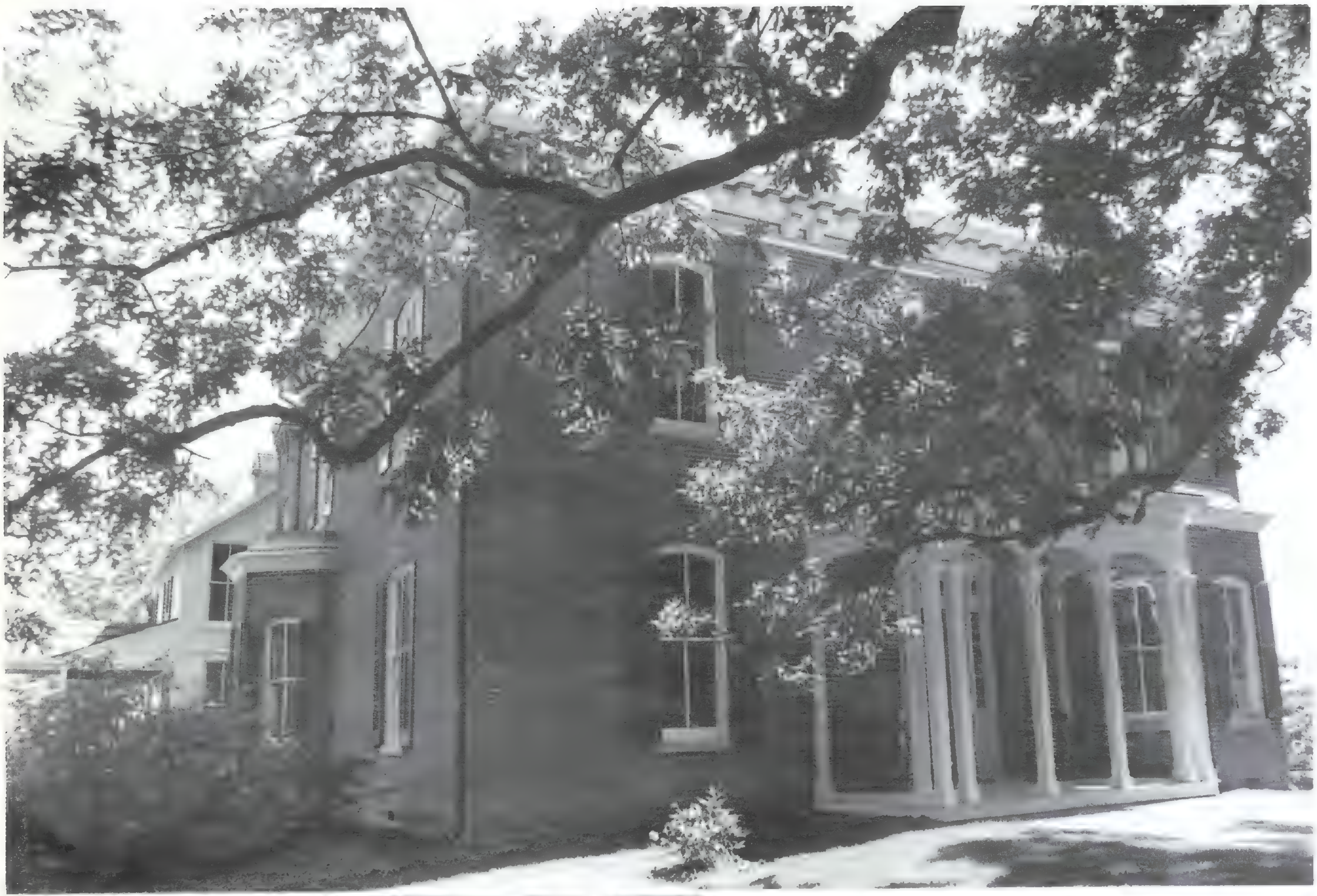

Top: The Joseph Holliday Bascom Manor House at Shaw Arboretum.

Above: Mrs. Joseph Bascom at the dedication of the Manor House, with Dr. Peter H. Raven and John Wallace, president of the Board of Trustees.

Right: Charles E. Bascom shared memories of his father with guests at the dedication ceremony.

Joseph Holliday Bascom Manor House Is Dedicated

MISSOURI BOTANICAL
JUL 06 1995
GARDEN LIBRARY

MAY 30, 1995, at a reception held beneath the shady oaks at Shaw Arboretum in Gray Summit, family and friends gathered to dedicate the Joseph Holliday Bascom Manor House, one of the major components of the Partnership Campaign. The Manor House is being restored as the first phase of the Arboretum's new Visitor Center complex outlined in its 1990 Master Plan.

Joseph H. Bascom loved the Arboretum and served on its oversight committee during his tenure on the Garden's Board of Trustees. The naming gift for the Manor House was made in his memory by his wife Elizabeth E. Bascom and their son and daughter, Charles E. Bascom and Mrs. John C. McPheeters (Connie). Other significant gifts to support the restoration of the Manor House were provided by the Gateway Foundation and Lucius B. Morse III, a Garden Trustee.

The handsome 1879 mansion will house a splendid array of exhibits made possible by a challenge grant from the Missouri Department of Conservation. The

continued on next page

exhibits, which were planned and designed with the assistance of the exhibit specialist of the Department of Conservation, will illustrate the broad environmental and conservation themes so important to the Arboretum's mission: the history of land use in the Meramec River Valley; the impact of human activity from Native Americans to European settlers; the history of the Manor House; and the importance of natural habitats and wise land use in sustaining biodiversity. The Manor House is scheduled for opening in 1996.

The Manor House was built in 1879 for the family of Thomas Crews, a St. Louis judge, lawyer, and gentleman farmer. The elegant brick house, with a commanding hilltop view of the Arboretum property, has been well maintained through the years and retains nearly all of its original windows, shutters, mantlepieces, and woodwork. After the Arboretum property was purchased by the Garden in the mid-1920s, the Manor House was often used as a summer residence for the Garden's directors.

The restoration of the Manor House is being supervised by David L. Hicks, construction manager at the Arboretum, with the assistance of W. Philip Cotton, Jr., a noted restoration architect in St. Louis. Great care is being taken to keep the restoration and the exhibits in harmony with the natural beauty of the setting, to emphasize the connection between the Manor House and the land. In keeping with the Arboretum's emphasis on sustainable, environmentally sound practices, the Manor House will incorporate a geothermal heating/cooling system.

Speaking on behalf of the family, Charles E. Bascom, Joseph Bascom's son, recalled his father's love of the outdoors and his lifelong commitment to conservation. John K. Wallace, Jr., president of the Board of Trustees, recalled "sitting with Joe in a freezing blind for hours without seeing a duck, and enjoying it, because Joe was such a delightful companion." Mr. Wallace added, "If every person who visits the Joseph H. Bascom Manor House comes away with just one-tenth of Joe's understanding and affection for the natural world, we will have achieved a tremendous good."

Peter H. Raven said, "Last year attendance at the Arboretum jumped by 30 percent, in large part due to the opening of the Whitmire Wildflower Garden. The 1990 Master Plan gives us the flexibility to accommodate growing numbers of visitors with basic services, enhanced displays, and new programs, while maintaining the traditional open, rural character of the site. The Bascom Manor House will play a substantial part in the Arboretum's role." ■

THE Manor House as glimpsed from the prairie area in the Whitmire Wildflower Garden, above and left. The five-acre garden leads visitors along winding paths through various demonstration plant communities and their associated native plants: prairie, woodland, wet meadow, and a limestone glade. The collection features showy and useful native plants that are not common in the nursery trade. Most were collected as seed from sites in nearby counties and propagated at the Arboretum. This year the garden features a population of blue-eyed Mary for the first time, planted from seed collected in the garden of the late Edgar Denison. "This garden represents a 'bridge' between landscape gardening and a totally natural area," said Scott Woodbury, Arboretum horticulturist. "We still weed and burn to keep it looking its best, but now that the plants are established, much of the display is self-sufficient." The Whitmire Wildflower Garden was made possible by a family gift in honor of Mrs. Blanton Whitmire.

Below: A trickle of water over natural sandstone is surrounded by moisture-loving plants at a spring pool in the wildflower garden.

Things to See this Summer at

Shaw Arboretum

This page, top: The second phase of restored wetland is open at the Arboretum. Visitors can follow shoreline paths and a winding boardwalk over the water to see the rich diversity of plants, birds, insects, and other animal species that are already established there. The wetland is a habitat restoration, including open water marsh, sedge meadow, and prairie areas constructed from former farmland with support from the U.S. Fish and Wildlife Service, Mr. and Mrs. A.H. Homeyer, and Mary Jane Frederickson.

Right: A boardwalk over one of the woodland pools in the Whitmire Wildflower Garden offers a closeup view of a spectacular array of aquatic plants.

Right: The rustic gazebo overlooking another woodland pool in the wildflower garden is a favorite place to sit and enjoy the peaceful quiet of a summer afternoon. Birds and wildlife are frequent visitors to the pool, which is shaded by tall trees and surrounded by blooming native plants.

Four Trustees Honored for Service

Since Henry Shaw's death in 1889 bequeathed the responsibility for the Garden to a Board of Trustees, the institution has benefitted from the services of dozens of community leaders who have given unselfishly of their time and resources to support the Garden. At a meeting of the Garden's Board on May 24, 1995, four Trustees were honored for their years of service to the Garden, which collectively totalled more than 95 years.

Howard F. Baer joined the Board in 1959, which represents more than 35 years of service. Mr. Baer has devoted his life to furthering cultural opportunities in St. Louis; the Metropolitan Zoological Park and Museum District was his idea and he worked hard for its passage in 1971. This laid the groundwork for establishing the Botanical Garden Subdistrict in 1983, which has done so much to ensure the Garden's growth and financial stability. Mr. Baer's expert knowledge of art has helped to guide the Sculpture Committee for many years, and in 1992 he established the Isabel Aloe Baer Memorial Garden east of the Linnean House in memory of his wife. He became an Emeritus Trustee in 1980.

Jules D. Campbell joined the Board in 1970 as an *ex officio* Trustee in his capacity as president of the St. Louis Academy of Science. Although his tenure in that position ended in 1989, he was named an Emeritus Trustee in 1990 and has continued to assist the Garden with its mission to educate and inform the public about science. Mr. Campbell has a heritage of service to the Garden; his grandfather Jules Desloge was an official at Boatmen's Bank who was one of three official witnesses to Henry Shaw's Will.

William E. Maritz was recognized for 15 years on the Board. He has been a tireless fundraiser for the Garden, serving currently on the steering committee for the Partnership Campaign. In 1982 the Maritz family gave the atrium in the education wing of the Ridgway Center as a tribute to their parents. The creative talents and services of Maritz, Inc. have enhanced Garden events on many occasions, including the film in the former Orientation Theatre in Ridgway Center and memorable presentations at the annual Henry Shaw Dinner. Mr. Maritz became an Emeritus Trustee in 1994.

William R. Orthwein, Jr. joined the Board in 1975 and became an Emeritus Trustee in 1993. He served the Board as first vice-president in 1980; over the years he has used his extensive corporate experience to assist the development committee, the steering committee for the Campaign for the Garden, and the campaign for the Ridgway Center. The Orthwein Floral Hall, home to Garden flower shows and exhibits since 1982, recognizes the generous support of Mr. Orthwein and his wife, Laura.

Board president John Wallace, center, presented service awards to four Trustees at the monthly meeting of the Board in Spink Pavilion on May 24, 1995. Shown with Mr. Wallace are (from left): William Maritz, Jules Campbell, Howard Baer, and William Orthwein.

Also at the May 24 meeting, John Wallace presented a resolution of the Board of Trustees honoring State Senator Betty Sims for more than 20 years of service as a volunteer in the Garden Gate Shop. Beginning in 1973 Mrs. Sims worked as a chairperson for the Shop, supervising much of its expansion and imaginative gift merchandising.

A STAFF MEETING PRESENTATION

Fulfilling Henry Shaw's Will

The 400 men and women on the Garden staff gather each month for regular staff meetings where they are introduced to new colleagues, awards are made, and programs are presented to keep the staff up to date on major Garden projects. At a recent staff meeting, senior botanist Marshall R. Crosby and Garden counsel Frank P. Wolff, Jr. presented a program on the role played at the Garden by the Trustees.

Crosby, who has been at the Garden for over 25 years and is a dedicated student of its history, described the work of the Board. The Board of Trustees hires the director of the Garden, who is responsible for day-to-day operations. The Trustees form committees to set policy and approve major decisions, such as the annual budget or changes to the 1972 Master Plan. The Board currently has the following committees: Arboretum, Awards, Buildings and Grounds, Capital Fund Campaign, Executive, Finance, Nominating, Pension, and Sculpture. Most often, Crosby explained, the Trustees on each committee work closely with the appropriate staff to do preliminary work in each area, before submitting the resulting policy proposals to the entire Board. "We have developed a fine trust and respect between the staff and the Trustees," Crosby said. "It is a solid working relationship, one where we rely on each other's judgement."

Crosby added, "Many people are not aware that our Trustees are volunteers; unlike many boards, they receive no remuneration for their service to the Garden." In addition to their work supervising the Garden's long-term goals and policies, Trustees assist with fundraising in the community and also support the Garden generously from their own resources.

Sometimes the duties of the Board have been unusual, to say the least. Crosby recounted the story of the "Wine Committee," a group of the first Trustees who were charged with the responsibility of dispersing Henry Shaw's collection of vintage wines after his death. Mr. Shaw left an extensive cellar despite numerous bequests in his Will to friends; the work went on for years!

Frank Wolff, counsel to the Board, has served as the Garden's lawyer since 1971; "I started the same day as Peter Raven," he said. Wolff explained that the Garden is actually a charitable trust operated under the 1859 Will of Henry Shaw. The Board of Trustees took title to the trust upon Shaw's death in 1889, but the public are the actual beneficiaries. It is unusual to have an institution organized in this way, and it required a special act passed by the Missouri legislature in 1859 to establish it. Mr. Shaw's fortune was primarily tied up in real estate, and at the time it was unclear whether real estate could be placed in perpetual trust.

Because of the legal structure of the trust, the Missouri Attorney General has a responsibility to ensure that the Garden is operated for the public benefit; as a result, the Trustees must bring suit in Circuit Court to request the Court to authorize powers not specified in Shaw's Will. Although the Will has proved extremely flexible over the past century, it has been necessary 19 times for the Board to petition the Court, usually for permission to sell real estate not used for botanical purposes.

Perhaps the most significant Court order was entered in 1981, when the Board obtained authorization to modernize the operations of the trust. This included the right to petition to establish the Botanical Garden Subdistrict of the Metropolitan Zoo-Museum District and seek tax support as approved by voters, to add up to ten term Trustees to the original group of 12 who serve for life, to appoint additional *ex officio* Trustees, and to adopt modern business practices in operating the Garden and investing its resources.

"The amendments authorized over the years by the Circuit Court of the City of St. Louis, and the major amendments of 1981, give the Trustees flexible administrative powers, which should enable them to operate the Garden efficiently and in the public interest in today's world," Wolff concluded. ■

Rodolphe Spichiger Receives Greensfelder Award

The Garden's highest conservation award, the Greensfelder Medal, was presented in April to Professeur Rodolphe Spichiger, director of the Geneva Conservatory and Botanical Garden in Geneva, Switzerland, *Conservatoire et Jardin botaniques de la Ville de Geneve*, and Professor of Tropical Botany at the University of Geneva. Dr. Spichiger was honored at a dinner on April 19, 1995, for his leadership of the Geneva garden, one of Europe's most prestigious botanical institutions.

Dr. Spichiger is an internationally recognized expert on the vegetation of tropical and subtropical South America and has worked collaboratively with Missouri Botanical Garden botanists in South America. The Geneva Conservatory and Botanical Garden has prospered under the leadership of Dr. Spichiger, who has rejuvenated its horticultural, scientific and public service programs since becoming director in 1987. Much like the Missouri Botanical Garden, it is one of its city's most popular attractions, and also has a highly rated research program, supported by an outstanding herbarium and library.

The Greensfelder Award was established in 1979 in memory of Dr. Albert P. and Blanche Y. Greensfelder, as a special honor for individuals who have made significant contributions to landscape, garden and park planning and designing for urban improvement. Past recipients include Roger Tory Peterson, the artist and naturalist; August A. Busch, Jr., creator of Busch Wildlife Preserve and Grant's Farm; and Roberto Burle Marx, Brazilian landscape architect and designer.

"With this award we recognize Professeur Spichiger's leadership in the advancement of a leading botanical garden," said Peter H. Raven. "In a few short years he has energized a dynamic staff, revitalized an important green space in a major metropolitan area, and built strong collaborative ties with the international botanical community. Under the direction of Professeur Spichiger, the Geneva Conservatory and Botanical Garden has truly flourished, and will undoubtedly continue to be a world leader for many years to come."

CLIFF WILLIS

Prof. Rodolphe Spichiger (left) received the Greensfelder Medal from John Wallace at a dinner held in his honor at Spink Pavilion on April 19, 1995.

Home Gardening

BEFORE I joined the staff of the Missouri Botanical Garden, I had the good fortune to work with hundreds of children at the Hilltop Garden and Nature Center, home of one of America's oldest youth gardening programs. At Hilltop, which is administered by Indiana University in Bloomington, children had the opportunity to connect with the natural world. Many of the activities we used in our classes can easily be adapted to sharing with your favorite kids at home.

A Place for Discovery

Sharing the activities in a garden has brought me some of the most rewarding times I have ever spent with children. A quiet conversation over the weeding can make communication easier. The physical and emotional well-being that come with hard work can help teach cooperation. Having their own plot of earth gives children a sense of belonging, something to be proud of, and something to give.

Gardening also gives children a place to dream, a place to explore and discover nature. As they observe the daily changes in the same piece of ground, the garden becomes a place to learn about cycles in nature and the renewing powers of the earth. At the same time, children master the basic skills needed to grow a beautiful garden of flowers and vegetables.

The garden can be a place to learn about other things, too. Try planting a Native American garden featuring the "Three Sisters," squash, corn, and beans, plus other crops indigenous to the New World. Children can learn about different methods of agriculture, different cultural customs and myths, and try new foods and recipes.

Rules? What Rules?

The first rule of gardening with children is to throw the rules out the window. Children develop at their own pace; what may be easy for one child can be difficult for another, even at the same age.

Provide gentle guidance and focus on the fun of gardening. Be open to a child's point of view. To children, bigger is better when it comes to zucchini. Green tomatoes are meant to be harvested. Chances are, the weeds are only bothering you. And perhaps most difficult for adults to fathom is the notion that rabbits are welcome, if not courted, in a child's garden.

In terms of garden design, remember that beauty is in the eye of the beholder. What may look to you like the wild frontier may look like a safe, secret haven to your child. View children's gardens with the same eye that you use to view their colorful drawings. Let it be the way he or she wants it to be.

If possible, establish a separate garden space for your child. The size of the plot will depend on the child, of course, but try to keep it to a manageable size. Provide child-sized gardening tools. Depending on the child's size and physical development, you may need to help with much of the digging and soil preparation.

Bigger, Brighter, Faster

Ask the child in your life what his or her favorite vegetable is and plant accordingly. Choose varieties of known quality and suggest crops with short planting-to-harvest times. Children need rapid results to keep up their interest level. Some kid-tested varieties include 'Detroit Dark Red' beets, 'Green Ice' lettuce, 'Gold Pak' carrots, 'Kentucky Blue Wonder' beans and 'Early Sunglow' corn. In addition to direct-seeding these crops, purchase starts of squash, sweet peppers, and tomatoes.

Young children are fascinated by the concept of biggest and smallest. With that in mind, consider adding the following varieties to the list: 'Thumbelina' carrots, 'Supersweet 100' tomatoes, 'Strawberry' popcorn, 'Baby Bear' or 'Jack-Be-Little' pumpkins, 'Sugar Baby' watermelons and 'Big Smile' sunflowers. And, for the truly adventurous young gardener with ample growing space; 'Yard Long' beans, 'Beefmaster' tomatoes, 'Dill's Atlantic Giant' pumpkins, 'Carolina Cross' watermelons and 'Mammoth' sunflowers.

Children also enjoy the shock value of growing different-colored vegetables. For fun, try varieties such as 'Red Sails' lettuce, 'Scarlet Runner' beans (good for making tepees and for attracting hummingbirds), 'Lumina' white pumpkins, 'Chocolate Beauty' peppers and 'Yellow Pear' tomatoes.

A child's garden should contain brightly colored flowers as well. Children enjoy familiar annuals such as marigolds, zinnias, sunflowers, cosmos, and snapdragons. Other colorful possibilities are Mexican sunflowers, black-eyed Susans, morning-glory vine, blanket flower, hollyhocks, and four-o'clocks. And don't forget to include fragrant herbs such as basil, parsley, and mint for smelling and for tea parties.

Pizza Gardens and Ecosystems

Ethnic gardens, alphabet gardens, cutting and drying gardens, and pizza gardens are some popular themes for young gardeners. Or you can focus on the garden as an ecosystem and provide plants that attract butterflies and birds. When designing plantings for butterflies, include members of the carrot family to provide food for the larvae, as well as brightly colored flowers to supply nectar for the adult insects.

Take the opportunity to teach your child about important ecological concepts; the list of books on the next page will help introduce both of you to fun ideas about "who eats whom," or garden "friends" such as toads, earthworms, and beneficial insects. You can explore nature crafts, such as dyes made with natural materials, or topics in natural science, including water systems, life cycles, habitats, weather, and interdependence. Keep lessons informal. Better yet, let your child teach you.

We all know at least one child who needs rescuing from a steady diet of cyberspace, super-heroes, and video games. We all need to share a little of ourselves, to play an active role in creating environmentally responsible citizens for the future. In doing so, we are helping to improve the quality of life, today and tomorrow, for the children we love.

For More Information

The Garden's Education Division offers wonderful classes and activities for

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	*David Brown*	727-2385
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Iris Society of Greater St. Louis	*Jim Loveland*	349-4977
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Carole Sebastian*	993-9270
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Sue Reed*	965-6813
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
West County Daylily Club	*Roy Bohrer*	240-8780

TELEPHONE HELP

The Garden has several telephone services available to assist you.

GardenLine **577-9400**
24-hour recorded information about Garden events, hours, admission and directions. Outside area code 314, call **1-800-642-8842** toll free, 24 hours a day.

Horticultural Answer Service **(314)577-5143**
Monday through Friday, 9:00 a.m. to noon, Master Gardeners are on hand to answer your gardening questions.

Master Composter Hotline **(314) 577-9555**
9:00 a.m. to noon, Monday through Friday. Specially trained Master Gardeners are on hand to answer your questions about yard waste management techniques. After hours leave a message and your call will be returned. The Master Composter program is supported by the Monsanto Fund.

HortLine **(314) 776-5522**
24-hour recorded gardening information is available with a touch tone telephone. You will need a brochure listing the hundreds of HortLine topics in order to use the service; you may request a brochure by calling the Kemper Center for Home Gardening at (314) 577-9440, 10 a.m. to 4 p.m. daily, or send a stamped, self-addressed envelope to HortLine, Kemper Center for Home Gardening, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

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children. From the Pitzman Nature Study Summer Program for children age 4 to 6 and their parents, to the Henry Shaw Academy for ages 7 to 18, you will find opportunities for every age and interest.

In addition, there are many excellent books on youth gardening available at your library or in the Garden Gate Gift Shop. Or visit the Kemper Center's new Children's Garden demonstration area, scheduled to be completed in the summer of 1996. The new garden will feature topiaries and other plantings designed to capture the mystery and magic of a child's imagination.

—Katie M. Belisle, Re.D.
Horticultural Coordinator of the Kemper Center for Home Gardening and former Interim Director of Hilltop Garden and Nature Center

Suggested Books

All of these titles are available in the Garden Gate Shop:

Plants for Play, Robin C. Moore, MIG Communications, 1993.

Let's Grow, Linda Tilgner, Storey Communications, Inc., 1988.

Looking at Plants, David Suzuki, John Wiley & Sons, 1992.

Snips & Snails & Walnut Whales: Nature Crafts for Children, Phyllis Fiarotta, Workman Publishing Co., 1975.

EcoArt: Earth Friendly Craft Experiences for 3 to 9 Year-Olds, Laurie Carlson, Williamson Publishing, 1993.

National Gardenng Association Kids' Guide to Gardening, Lynn Ocone and Eve Pranis, John Wiley & Sons, 1990.

KidsGardening: A Kid's Guide to Messing Around in the Dirt, Kevin Raftery and Kim Gilbert Raftery, Klutz Press, 1989.

Your First Garden Book, Marc Brown, Little, Brown & Company, 1981.

Sleeping with a Sunflower: A Treasury of Old Time Gardening Lore, Louise Riotte, Storey Communications, Inc., 1987.

Sunflower Houses: Garden Discoveries for Children of All Ages, Sharon Lovejoy, Interweave, 1991.

Hollyhock Days: Garden Adventures for the Young at Heart, Sharon Lovejoy, Interweave, 1994.

Garden Book and Greenhouse, Wes Porter, Workman Publishing Co., 1992.

My First Garden Book, Angela Wilkes, Knopf, 1992.

Garden Crafts for Kids: 50 Great Reasons to Get your Hands Dirty, Diane Rhoades, Sterling, 1995.

Linnea's Windowsill Garden, Christina Björk and Lena Anderson, Farrar Straus & Giroux, 1988.

The William T. Kemper Center for Home Gardening is open 10 a.m. to 4 p.m. daily. Admission is free with regular Garden admission. For information on classes and activities at the Center, please call (314) 577-9440.

The Plant Doctor is available at the Kemper Center for walk-in consultations from 10 a.m. to noon and 1 to 3 p.m. Monday through Saturday.

Call HortLine for recorded gardening information 24 hours a day! For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

Calendar

july 3 monday

Plant Clinic

10 a.m. to noon, Kemper Center for Home Gardening. Receive on-the-spot diagnosis of plants, pests, and problems from Master Gardeners and other experts. Free with Garden admission.

july 15 — july 23

Henry Shaw Cactus Society 50th Anniversary Show and Sale

Saturday, July 15: noon to 8 p.m.; Sunday, July 16: 9 a.m. to 8 p.m.; Monday through Friday, July 17-21: 9 a.m. to 5 p.m.; Saturday, July 22: noon to 8 p.m.; Sunday, July 23: 9 a.m. to 5 p.m. In the Orthwein Floral Hall. The Henry Shaw Cactus Society was founded at the Garden in 1942 but didn't hold its first plant show until 1945. Come see the most outstanding display of cacti and succulents in the society's history as they celebrate their golden jubilee. Hundreds of exhibits will be judged by experts from across the U.S., and thousands of plants will be available for purchase. Show is free with Garden admission.

july 17 monday

Plant Clinic

10 a.m. to noon, Kemper Center for Home Gardening. See July 3 for details.

At left: The botanical prints of Henry Evans are on exhibit in Monsanto Hall this summer. See July 17 – August 25, above.

july 17 — august 25

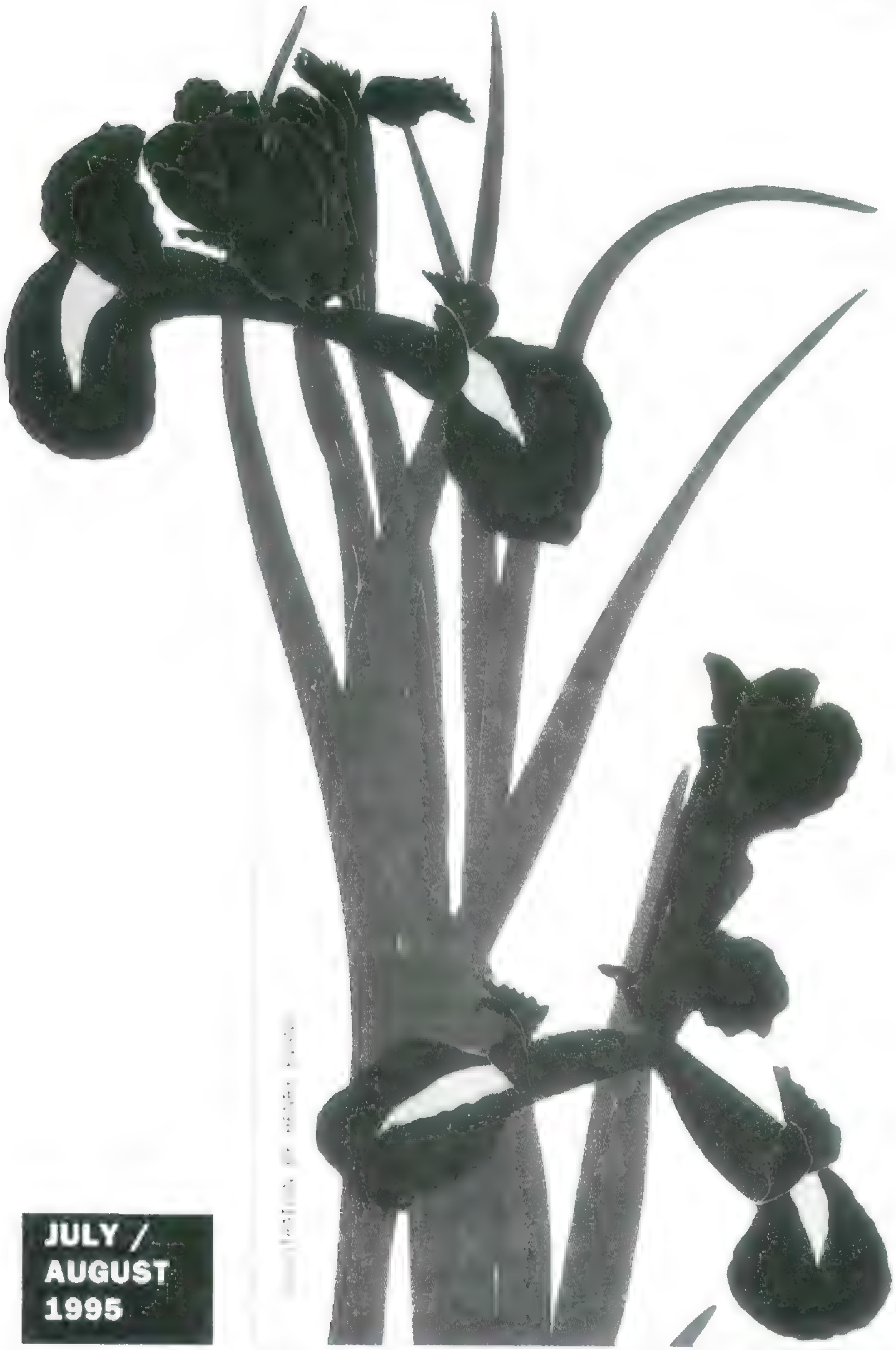
Henry Evans Exhibit

9 a.m. to 8 p.m. daily, Monsanto Hall, Ridgway Center. Colorful botanical prints by the late Henry Evans have been famed for more than 35 years for their exquisite and accurate depictions of wildflowers. Evans's prints have been exhibited at the Hunt Institute in Pittsburgh, the Royal Horticultural Society in London, and the Smithsonian Institution, among many others. Selections of Evans prints will be available for purchase in the Garden Gate Shop. Free with Garden admission.

july 22 saturday

The Birds and the Bees

10 a.m. to 3 p.m., Kemper Center for Home Gardening. Taste real comb honey and make peanut butter and pine cone bird feeders that you can take home. Enjoy lectures by local beekeepers at 10:30 a.m., 11:30 a.m., 1:30 p.m., and 2:30 p.m. Free with Garden admission.



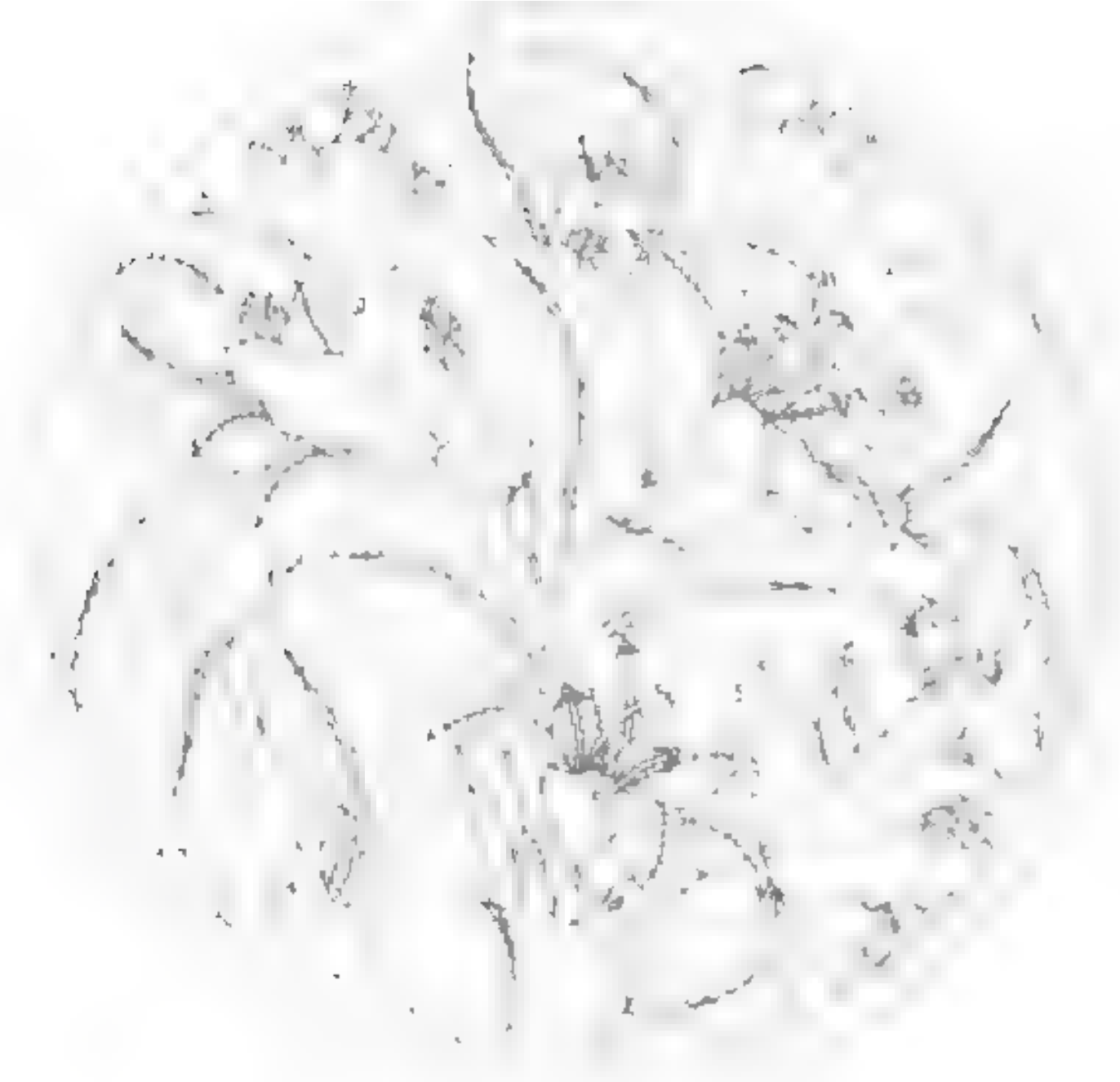
Members' Days

july 18 tuesday *Sunrise Photo Walk*

5:51 a.m., Ridgway Center and grounds. Bring your camera, have a cup of complimentary coffee, and capture your favorite Garden scenes at sunrise. Free, for Garden members only.

august 17 thursday *Herb Day*

10 a.m. to 3 p.m., Tower Grove House Herb Garden. Join members of the St. Louis Herb Society for informative guided tours of the herb garden. A variety of books published by the Herb Society, including their new cookbook, will be available for purchase, plus plants and herbal products made by society members. Enjoy herb teas and other refreshments. Free, for members only.



september 2, 3, 4 labor day weekend

21st Annual Japanese Festival

10 a.m. to 10 p.m. daily, Ridgway Center and grounds. Featuring the spectacular San Jose Taiko Dojo drummers, tea ceremonies, and popular candlelight walks in the Japanese garden. Highlights of this year's festival include the opening parade, cooking demonstrations, karaoke contests, kabuki, koto music, calligraphy exhibit, ikebana and bonsai displays, kimono fashion shows, and more. Festival admission is $6 for adults, $4.50 for seniors ages 65 and older, $2 for Garden members. Children ages 12 and under are free. For more information, call the 24-hour GardenLine, 577-9400. Outside St. Louis call toll free, 1-800-642-8842.

july 24 monday

Henry Shaw's Birthday

10 a.m. to 3 p.m., Tower Grove House and grounds. Celebrate the 195th birthday of the Garden's founder with refreshments, storytelling, face painting, and tours of Tower Grove House and the English Woodland Garden. Enjoy a special lecture by archivist Carol Christ on the history of Tower Grove House. Free with Garden admission.

july 29 saturday

Nature Masks

10 a.m. to 3 p.m., Kemper Center for Home Gardening. Make a fanciful mask out of natural materials! Free with Garden admission.

july 30 sunday

Iris Society Rhizome Sale

11 a.m. to 5 p.m. or until sold out, Beaumont Room, Ridgway Center. The Greater St. Louis Iris Society sponsors its annual sale of surplus rhizomes taken from the Garden's displays. All proceeds benefit the Garden. Come early for best selection! Free with Garden admission.

august 5 saturday

Grow a Tea Garden

10 a.m. to 3 p.m., Kemper Center for Home Gardening. Come and taste delightful herbal teas brewed fresh from members of the mint family, including peppermint, spearmint, orange mint, and chocolate mint. Each child will receive a mint plant to take home. Free with Garden admission.

august 7 monday

Plant Clinic

10 a.m. to noon, Kemper Center for Home Gardening. See July 3 for details.

august 20 sunday

Daylily Society Sale

9 a.m. to 5 p.m. or until sold out, Orthwein Floral Hall. The Greater St. Louis Daylily Society presents its annual sale of bare root plants ready to plant for a colorful display next summer. Over 400 cultivars will be available, all tagged by name, color, and height. Shop early for best selection! Free with Garden admission.

august 21 monday

Plant Clinic

10 a.m. to noon, Kemper Center for Home Gardening. See July 3 for details.

every day

Free Walking Tours

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a fascinating tour of the Garden. Free with regular admission.

wednesdays & saturdays

Garden Walkers' Breakfast

7 a.m., grounds. In cooperation with the American Heart Association, the grounds open early every Wednesday and Saturday morning to encourage fitness walking. Greenhouses open at 9 a.m. Breakfast is available for purchase in the Gardenview Restaurant, 7 to 10:30 a.m.

GARDEN GATE SHOP

NEW! Summertime Sale

Saturday, July 29 and Sunday, July 30
9 a.m. to 8 p.m.
20% Members' Discount

The Shop's delightful summer sale features a 20% members' discount on everything you need for summertime fun. Enjoy spiced iced tea and sample some of the Garden's own line of foods and condiments from Ces & Judy. The Shop has the best selection of books on gardening and cooking in town to help you prepare your summer harvest with flair.

And just for fun, the first 25 purchasers each day will receive a free Missouri Botanical Garden frisbee! **This is the only notice of the Summer Sale you will receive, so be sure to mark your calendar today.**

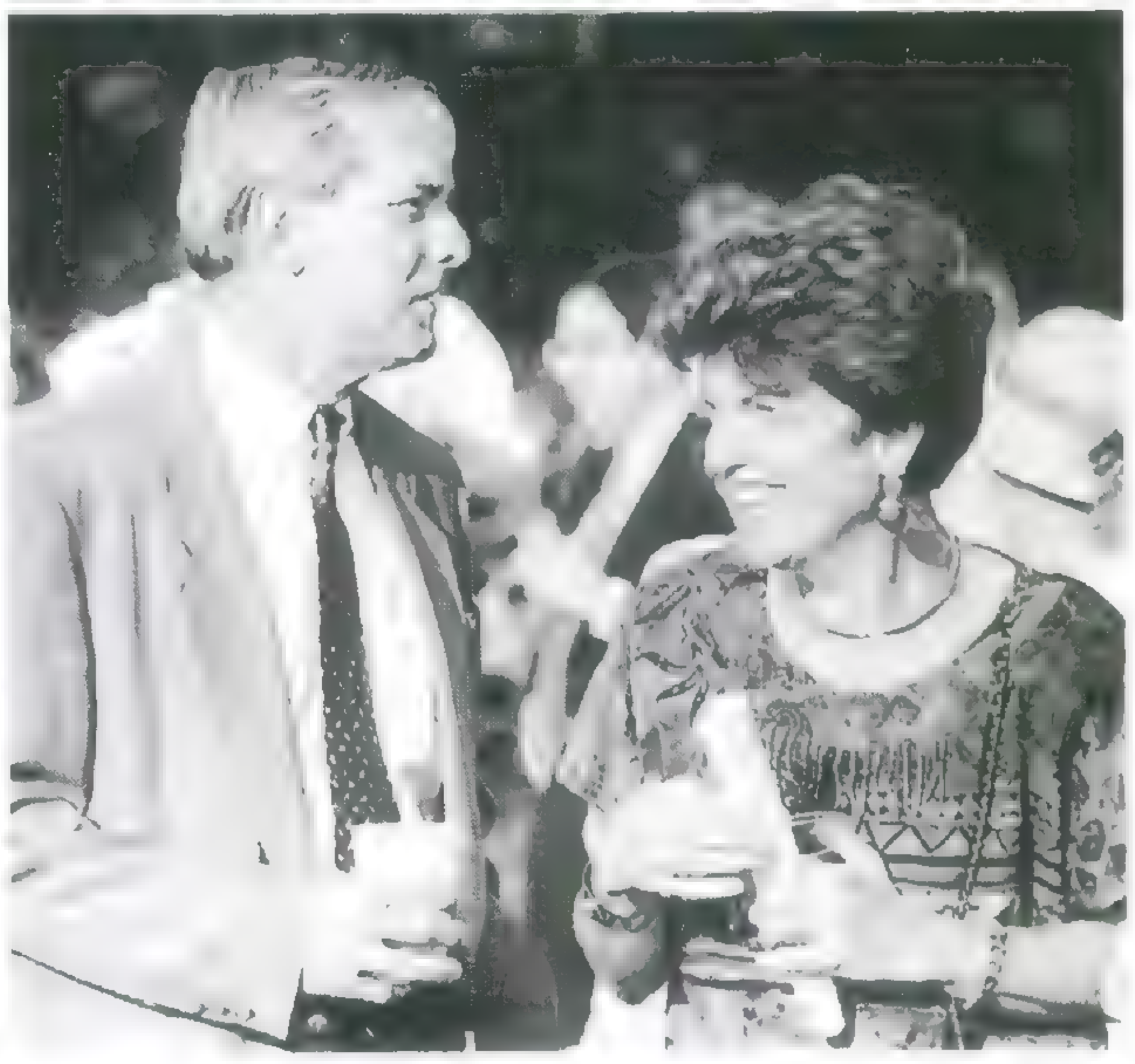
Summer Gardens Galore

Beat the heat with the Shop's great selection of fountains and birdbaths to cool off your garden. Brighten up the landscape with plants, containers, garden ornaments, colorful flags, and wind chimes. And be sure to browse through the assortment of botanical soaps and fragrances, natural food products, and educational toys. Add beauty and style to your summertime garden, all at 20 percent off!

ILLUSTRATION BY HENRY EVANS

In conjunction with the exhibit of Henry Evans's botanical prints upstairs in Monsanto Hall, the Shop will be featuring a wonderful array of items decorated with Evans's famous designs, plus a selection of his botanical prints.

PHOTOS BY CLIFF WILLS



Top left: Donors and guests reading the names inscribed on the bricks. Left, top to bottom: A young member with the fountain in the Terrace Garden. The Thursday reception. Former Munchkin Mickey Carroll, together with Tin Man, Dorothy, Scarecrow, and the Cowardly Lion, stole the show on Saturday.

Top right: At the party Thursday evening, John Wallace, president of the Board of Trustees, and Ellen Wallace stroll down the path from the Entry Court into the gardens. Above: Jane Tschudy, president of the Members' Board, with her husband Bob.

GRAND OPENING

Members' Entry Court • June 15 –19, 1995

A GALA WEEKEND heralded the opening of the Members' Entry Court at the William T. Kemper Center for Home Gardening. The celebration began on Thursday night with a party for donors to the Entry Court; Saturday was the special members' opening; and on Sunday everyone got to "Follow the Yellow Brick Road" of bricks inscribed with names of friends and loved ones as the Garden officially welcomed visitors to view the first feature to open at the new outdoor demonstration gardens.

Dorothy, Scarecrow, Tin Man, and the Cowardly Lion greeted visitors, accompanied on Saturday by Mickey Carroll, one of the Munchkin stars from the original movie. Music, free lollipops, and showings of *The Wizard of Oz* completed the festivities for members on Saturday.

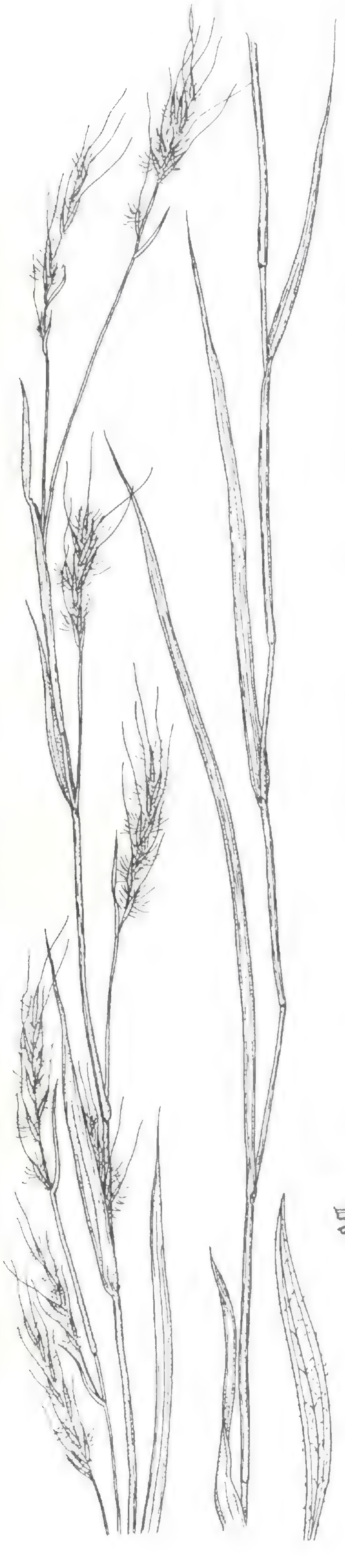
The Members' Entry Court was sponsored by the Garden Members' Board, who contributed the leadership gifts. The brick courtyard leads to the Kemper Center and the 23 wonderful demonstration gardens that are scheduled for completion in 1996. The inscribed bricks are a lasting way to recognize family and friends by etching their names on a brick placed in the new Entry Court.

Bricks can still be purchased and added to the Entry Court. Please call the Development Office at (314) 577-9495.

Native Plant Sale

Shaw Arboretum • September 9, 1995 • 11:30 a.m. to 5 p.m.

Below: Little bluestem, *Schizachyrium scoparium*.
— Drawing by Ellen Lissant for the Flora of Missouri project.



PALE PURPLE CONEFLOWERS, blazingstars, native ornamental grasses — if you've longed to include them in your garden, the Arboretum is the place to find them! Come to Shaw Arboretum on Saturday, September 9, for the biggest selection of native prairie, glade, woodland, and wetland plants in the St. Louis area. All plants will be sold in containers and are nursery propagated, not wild collected. Exhibitors at the sale will include some of the finest nurseries in Missouri:

Missouri Wildflowers Nursery
Hamilton Seed and Wildflowers
Rock Post Wildflower Nursery
Gilberg Perennial Farm
Bowood Farms
Pan's Garden
Forrest Keeling Nursery
Rick Clinebell
Shaw Arboretum

Nowhere else will you find such an extensive collection of Missouri native plants under one tent! Explore Shaw Arboretum, visit the beautiful Whitmire Wildflower Garden, and take home some new plants and new ideas for your home garden.

Shaw Arboretum is located in Gray Summit, Missouri, 40 miles west of St. Louis off I-44 at the Gray Summit exit.

Native Plant Conference • Saturday, September 9, 1995

In conjunction with the Native Plant Sale, Shaw Arboretum is sponsoring a day-long seminar on rural and suburban landscape management featuring nationally recognized experts. Speakers include Neil Diboll, prairie restorationist and proprietor of Prairie Nursery in Westfield, Wisconsin; Mark Hall, director of restoration and preservation at the Nature Institute in Alton, Illinois; Douglas M. Ladd, director of science and stewardship for the Missouri Chapter of the Nature Conservancy; and Larry P. Lowman, naturalist and proprietor of Ridgecrest Nursery near Wynne, Arkansas.

The conference will include tours of the Whitmire Wildflower Garden and other Arboretum features such as the tallgrass prairie, wetland, and glade communities. Tours will be led by local experts including Arboretum staff and volunteers.

Attendance is limited to the first 200 registrants, and registration is required. *Deadline for registration is August 1.*

Fees: $30 per person before August 1, $40 after; $20 for full-time students; $6 additional for box lunch. Cancellations must be made in writing by August 15 (a $15 processing fee will be held).

Please use the registration form below, or call Shaw Arboretum at (314) 451-3512.

Native Plant Conference Registration Form

Name Company/Institution

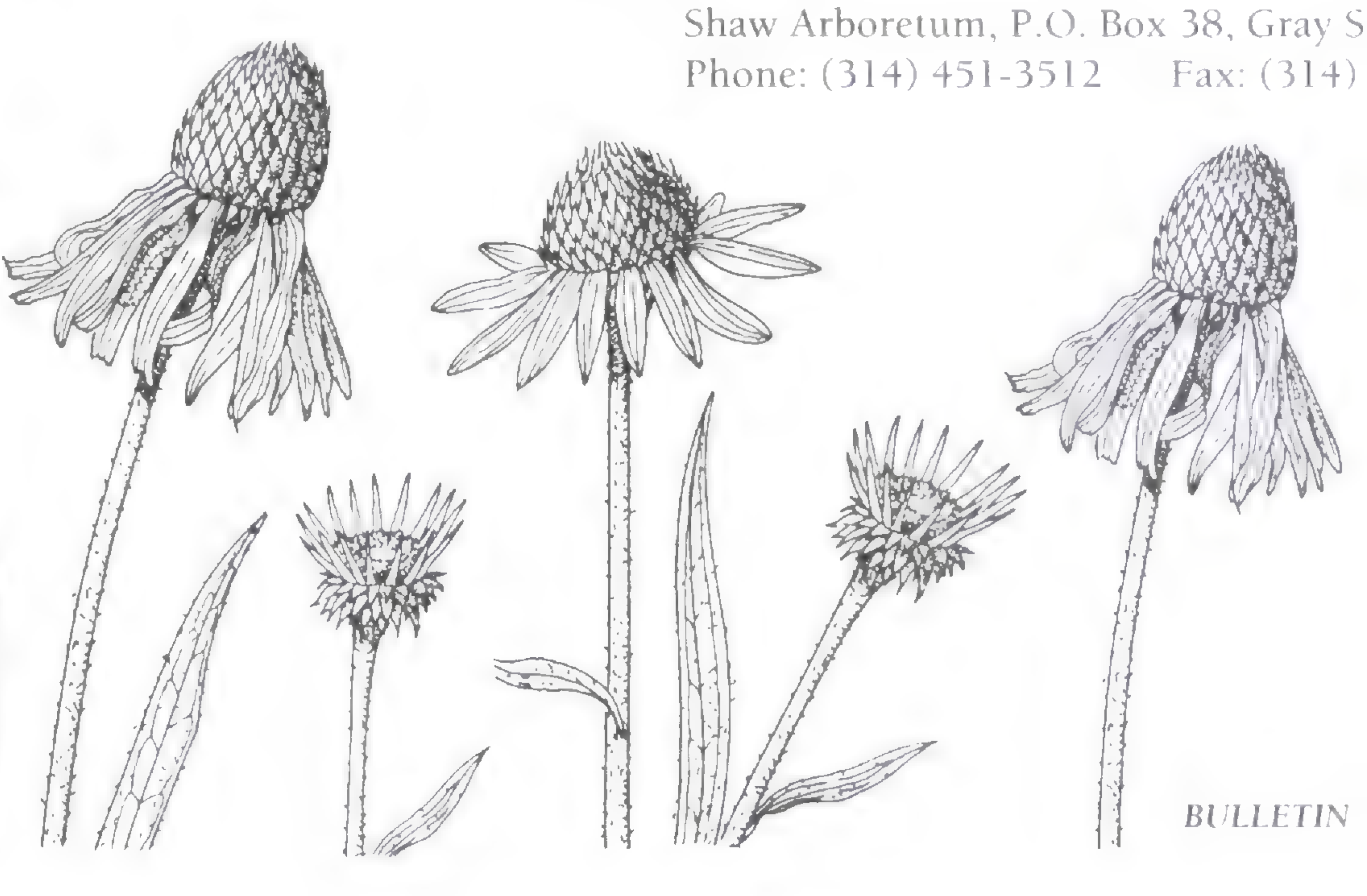
Address City State Zip

$ Enclosed for Registrations ($30 before August 1, $40 after, $20 full-time students)

$ Enclosed for Box lunches ($6 each): Ham Turkey Vegetarian

Please make checks payable to and mail to:

Shaw Arboretum, P.O. Box 38, Gray Summit, Missouri 63039
Phone: (314) 451-3512 Fax: (314) 451-0541



At left: Purple coneflowers, *Echinacea purpurea*, and Yellow coneflowers, *Echinacea paradoxa*.
—Drawings by Linda Ellis for the Flora of Missouri project

Membership Reaches 31,000

In 1994 the Garden reached a new milestone with membership totalling 31,000 households, level that has remained steady for over six months. The Garden has the largest membership of any botanical institution in the United States and the largest of the cultural institutions in St. Louis.

"We are very grateful to the people of St. Louis who continue to support us in such record numbers," said Brenda Banjak, membership coordinator. "Our growth has remained steady at a level that is very good for a metropolitan area the size of St. Louis."

The Garden celebrated its 30,000th membership in 1992, an increase of 5,000 households in just five years.

Thank You to Mother's Day Sponsors

The annual Mother's Day Garden Party and Luncheon on May 12 was a big success again this year. We extend our warmest appreciation to the sponsors of the event: **Famous-Barr Company**, for a fabulous fashion show, and **Gerber Multi-Service Corporation** for the lovely floral centerpieces.

The Fourth Annual "Best of Missouri" Market

Now for Two Days!

Saturday & Sunday, October 14 & 15, 1995

9 a.m. to 5 p.m.

Now it's bigger than ever! Mark your calendar so you won't miss out on two whole days of our crowd-pleasing celebration of the finest Missouri foods, specialty products, handicrafts, plants, music, exhibits, children's activities, and more! It's fun for the whole family. Watch for details in your September *Bulletin*.

In Memoriam

Pauline Pitzman Eades

Staff and friends of the Garden were saddened by the death of Pauline Skipper Pitzman Eades on May 22, 1995. Mrs. Eades, who had been a volunteer at the Garden, was one of its most faithful friends. For 38 years the Pitzman Fund has supported education for thousands of children at the Garden in natural history and nature study through a generous bequest of Frederick Pitzman, Mrs. Eades' brother-in-law.

Mrs. Eades was involved in charitable and cultural activities in St. Louis for half a century. She was born in London, England, and came to St. Louis in 1937 when she married Dr. Marsh Pitzman, a prominent physician, who died in 1957. In 1958 Mrs. Eades married Dr. Dee W. Eades, a physician and surgeon who died in 1981.

The Pitzman Nature Study Program at the Garden encourages a child's natural curiosity by introducing ideas about science, nature, and ecology to children ages four to six, accompanied by their parents. The Pitzman program has been so popular over the years that many former students are now sending their own children. In 1994 over 700 children and parents participated in Pitzman classes.

Dr. Larry DeBuhr, director of education at the Garden, said, "Mrs. Eades was a lovely person and maintained a lively interest in the activities of the Pitzman Nature Study Program. We will miss her, and we are extremely grateful for her support over the years."

In Memoriam

Spencer T. Olin

Spencer T. Olin, a longtime benefactor of the Garden, died at his home in Florida this past April at the age of 94. Mr. Olin was a noted St. Louis industrialist and philanthropist, a former director and officer with Olin Corporation. The company was founded in East Alton, Illinois in 1892 by his father.

An avid sportsman with a lifelong interest in nature and conservation issues, Mr. Olin was one of the Garden's most generous supporters for many years, both through his personal gifts and through the Spencer T. and Ann W. Olin Foundation. Support was provided for many important undertakings at the Garden, including major donations to the Center for Plant Conservation and the *Flora Mesoamericana* project.

Mr. Olin was a major benefactor of many St. Louis institutions, including Washington University, the Washington University School of Medicine, and St. Louis Children's Hospital, in addition to his alma mater, Cornell University.

Dr. Peter H. Raven said, "We are deeply grateful for the magnificent support the Garden has received from Mr. Olin and from the Spencer T. and Ann W. Olin Foundation for so many years. Theirs is an extraordinary record of philanthropy for very important purposes, a vital legacy for the future."

CLIFF WILLIS

Front row, left to right: Jeanne McGilligan, manager of volunteer programs; Margery Reis, Georgene Jenkins, Pat Bushman, Joyce Broughton, Janne Niemoeller, Lois Friedman, Florence Hoey, Nadine Mahe, Bobbe Sandvoss, Mary Jean Poetz, Renate Stern, Dale Boring, Maureen Kaminski, Peggy Abel. Back row, left to right: Peter Raven, director; Martha Suzanne Stark, Albert Hoehn, Herman Easterly, John Schoenherr, Eleanor Sauer, Mike Costello, Jr., Bill Betz, Catherine Vanderpearl, Monica Clapper (co-chairman of the Volunteer Instructors), Joanne Fogarty, John Wright. Not pictured: Mary Edna Wenzel, Frank Holdener, Jr., Louise Green, Paula Kipnis, Alma Reitz, Maurita Stueck, Charles Walter, Jeanne Costello, Roberta Dearing, Robert Lumley, Sr., Mary Kay Rossmann, Peggy Sheridan, Charlotte Sisler, Clair Woodbury.

Volunteer Service Recognition

On April 27, 1995, the annual luncheon honoring Garden volunteers who have completed decades of service was held at Spink Pavilion. Dr. Raven paid tribute to the remarkable group of men and women who have been such an important part of the Garden's daily operations:

"It was just a short time ago that we had only about 300,000 visitors annually and 450 volunteers to help us get things done. Today, we have more than 800,000 visitors and more than 800 volunteers....History will record the epic role that you play in perpetuating the historic American concept of museums as public trusts and who view museum work as a service to society."

Mary Edna Wenzel Honored for 50 Years

This year the Garden recognized a truly remarkable anniversary. Mary Edna Wenzel, who could not attend the luncheon, began volunteering at the Garden 50 years ago, when she took a course on arranging dried Victorian bouquets from the renowned Georgia Vance, who was responsible for the diplomatic reception rooms in the State Department. Mrs. Wenzel put her skills to work arranging flowers for Tower Grove House, as well as working in the greenhouses and the herb garden. She is a member of the Herb Society, an expert on mushrooms, a skilled needlewoman, photographer, and watercolorist.

Frank Holdener, Jr. Recognized for 30 Years

Frank Holdener has volunteered as a gardener on the grounds and as a member of the Horticultural Answer Service. He has also served on the Speakers' Bureau and is always willing to share his vast knowledge of plants with others.

Twenty Year Awards

Volunteers honored for 20 years of service to the Garden were: Dale Boring, Climatron and orchid collection; Joanne Fogarty, Garden Guides; Louise Green, Garden Guides; Paula Kipnis, Garden Guides; Nadine Mahe, Garden Guides and Herb Garden; Mary Jean Poetz, orchid collection and Garden Gate Shop; Renate Stern, orchid collection; Maurita Stueck, Garden Guides, Volunteer Instructors; and Charles Walter, Answer Service.

Ten Year Awards

Volunteers recognized for ten years of service were: Peggy Abel, Bill Betz, Joyce Broughton, Pat Bushman, Jeanne Costello, Mike Costello, Jr., Roberta Dearing, Herman Easterly, Lois Friedman, Albert Hoehn, Florence Hoey, Georgene Jenkins, Maureen Kaminski, Robert Lumley, Sr., Janne Niemoeller, Margery Reis, Mary Kay Rossmann, Bobbe Sandvoss, Eleanor Sauer, John Schoenherr, Peggy Sheridan, Charlotte Sisler, Martha Suzanne Stark, Claire Woodbury, John Wright, and Catherine Vanderpearl.

The staff and members of the Garden extend their warmest appreciation to all of the Garden volunteers and congratulations to the Service Award honorees.

St. Louis Walk of Fame—Dr. Peter H. Raven received a star in the St. Louis Walk of Fame at an outdoor ceremony in the University City Loop on May 21, 1995. Seven well-known St. Louisans were honored for their outstanding contributions to the cultural heritage of St. Louis, including boxer Henry Armstrong, broadcaster Bob Costas, entertainer Dick Gregory, playwright William Inge, architect Theodore Link, Peter Raven, and musician Henry Townsend. Past honorees include such well-known St. Louisans as Maya Angelou, Yogi Berra, Miles Davis, T.S. Eliot, Bob Gibson, Scott Joplin, Stan Musial, and Tennessee Williams.

Centennial of a Scholar

100 Years Ago, Anna Isabel Mulford Earned the First Ph.D. Granted by Washington University

By Jennifer Hedin and Carol Davit

MAY 1995 marked the one hundredth anniversary of the first doctoral degree conferred by Washington University, which was granted for work in botany. The person who earned Washington University's first Ph.D. degree was Miss Anna Isabel Mulford.

In 1885, Henry Shaw agreed to establish a school of botany at Washington University, reflecting the importance he attached to research and education. Shaw stipulated that the director of the Garden be named the George Engelmann Professor of Botany at the university, and currently this post is held by Dr. Peter H. Raven.

In the one hundred years since Dr. Mulford earned her Ph.D., some 310 master's and doctoral degrees have been granted by Washington University to students in botany at the Garden. The Shaw School of Botany eventually merged into the University's present Department of Biology. Currently there are 24 students studying at the Garden associated with area universities, seven of whom are from Washington University.

Right:* Agave horrida *var.* micrantha, *from a photograph of a plant at the Garden, taken by A. Isabel Mulford, January, 1895.

Anna Isabel Moulford, who was born in 1848 in East Orange, New Jersey, graduated from Trenton Normal School in 1883, then taught botany and earned both her A.B. and A.M. degrees in 1886 at Vassar College. According to the archives of Vassar, she resigned from teaching in 1889 because health problems prevented her from carrying on botanical work.

However, following her resignation from Vassar, Miss Mulford came to St. Louis and studied with Dr. William Trelease, then director of the Garden. She took at least two major field trips to collect plants, one to the northwestern United States in the summer of 1892, on which she made a general collection of the flora, and one to the Southwest in 1895 to gather information for her research on the genus *Agave* (century plants). In her article "Notes upon the northwestern and Rocky mountain flora," which appears in *The Botanical Gazette* (March, 1894), Miss Mulford describes her collecting trip in the summer of 1892:

"I traveled by railroad to the principal points, and by stage, carriage or horseback to more distant ones. Of course I walked a good deal . . . During the entire season a collection of about eleven hundred species was made, two-thirds of which were from new and unexpected localities, and many for showing variations developed under changed conditions. Some plants seem to be quite new. I have learned to regard Idaho as a meeting place of various floras. There one meets with sub-arctic plants from the north which can even be traced to Siberia, and the cacti and other southern plants are common."

Among the 1100 plants that she collected during this trip were four species and one variety new to science that she describes in *The Botanical Gazette* article: *Oenothera idahoensis, Scutellaria footeana, Frasera caerulea, Frasera montana*, and *Gilia grandiflora* var. *diffusa*. Several additional species were also named for her, based on her specimens, for example, *Astragalus mulfordae* M.E. Jones in 1898 from Idaho and *Agave mulfordiana* Trelease in 1920 from Arizona.

The title of Miss Mulford's 1895 handwritten dissertation was "A preliminary study of the Agaves of the United States, with some general introductory remarks upon the genus," a copy of which is in the Washington University archives. The dissertation was published the following year in the *Reports of the Missouri Botanical Garden*. As noted in the Director's Report from the Garden's early annual reports, Dr. Mulford taught botany classes at Washington University and at the Garden at least from 1894 to 1897, at The High School in St. Louis, and in 1907 was a teacher at McKinley High School. In 1896, Dr. Trelease wrote:

"Miss Mulford has continued her excellent work with special classes by giving at the Garden and in the public school buildings a number of teachers' courses, adapted to the science requirements of the public schools, a direction in which I am especially desirous of having the Garden facilities utilized to the utmost."

Dr. Mulford also participated in seed distribution to St. Louis schools for use in classes, and in 1903 was president of the St. Louis Botanical Society.

Little else has been learned about Dr. Mulford's life before or after she received her education. In addition, the names of her mother and other relatives are unknown. It is probable that she continued to teach. According to an obituary notice in *The New York Times*, she lived to the age of 95, passing away on June 16, 1943 in a nursing home in Montclair, New Jersey.

Dr. Trelease wrote in the Garden's tenth *Annual Report* in 1899: "It is a matter of congratulation that nearly all of the persons who have served as assistants or instructors in the School of Botany, have assumed responsible botanical positions on leaving it."

Jennifer Hedin is a doctoral candidate at Washington University studying at the Garden. Carol Davit is a member of the Garden staff.

Natural History Tours for 1996

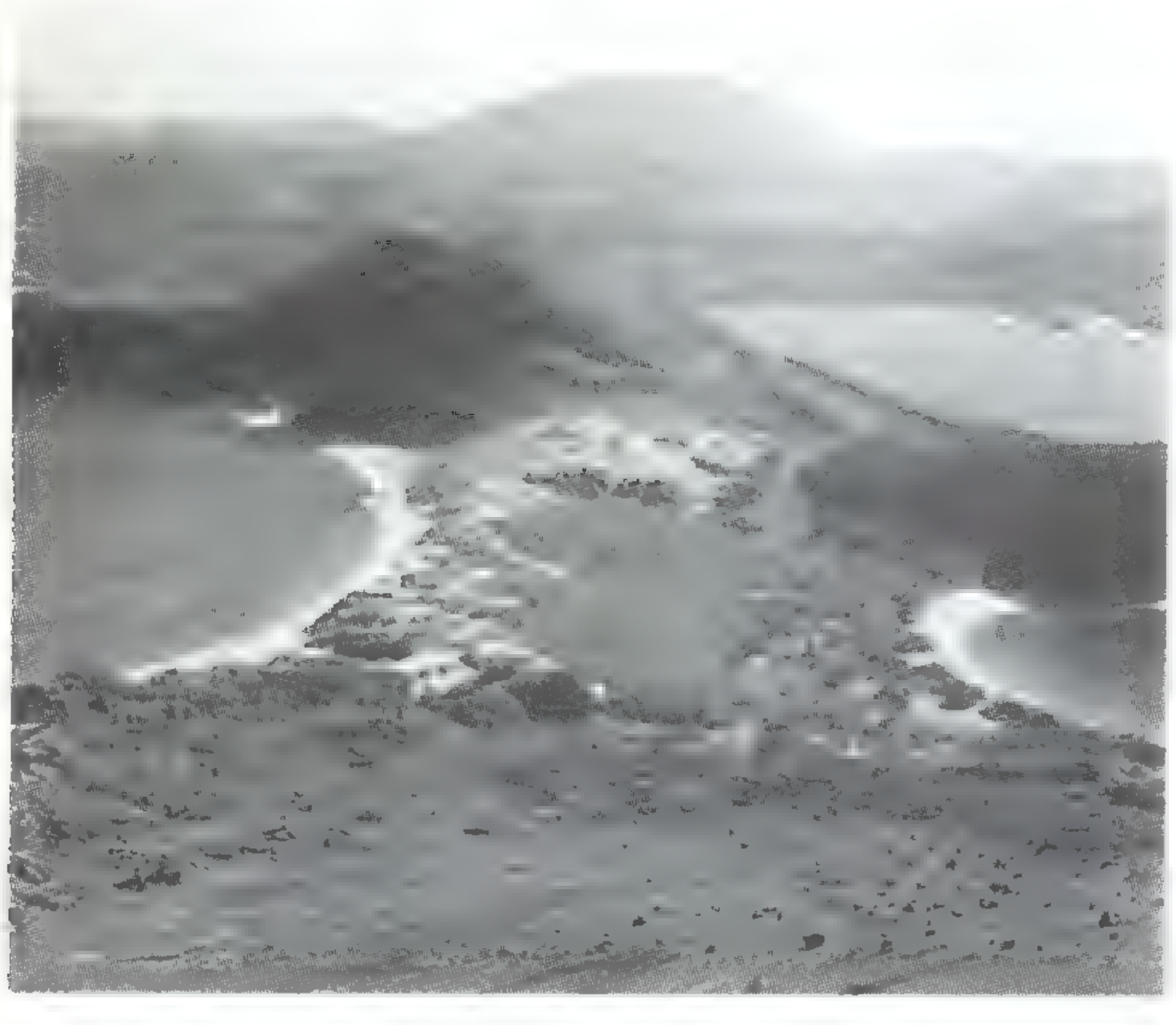
IT'S TIME to update your passport — the Garden has announced an outstanding natural history travel program for 1996. The tours planned for next year offer members the chance to visit some of the most exciting natural areas in the world, led by members of the Garden's Education Division staff. Watch future issues of the *Bulletin* for details, or call the Education Division at (314) 577-5140. Tours fill up early, so put your name on the list soon!

Trinidad and Tobago

March 2-10, 1996

Located at the southernmost end of the Caribbean, this two-island nation offers travellers a wealth of unspoiled tropical habitats including mountain rain forests, savannahs, fresh and salt water swamps, beaches and coral reefs. Because it is only six miles off the northeast coast of Venezuela, Trinidad has a much richer flora and fauna than other Caribbean Islands. With hundreds of species of birds, mammals, and butterflies, few areas of comparable size can match it for species diversity.

The trip includes daytime and nighttime excursions to explore these magnificent islands. Travel by boat into the mangroves of the Caroni Marsh to observe the return of scarlet ibis to their roosts. Snorkel in the blue Caribbean waters and view the reef from a glass bottom boat. Visit a seabird nesting colony, and spend time in the rain forests at the world-renowned Asa Wright Nature Center. And experience the culture of the island through its food, history, and art.


LARRY DEBUHR

The Galapagos Islands offer unparalleled experiences for naturalists.

LARRY DEBUHR

Birds and wildlife in the Galapagos are unafraid of photographers and observers.

Galapagos Islands

April 10-20, 1996

The Galapagos Islands are one of the most significant biological wonders on Earth. Ever since Charles Darwin published his observations of the natural history of these islands, naturalists, biologists, and adventurers of all types have traveled to these enchanted islands to observe the plants and animals. The Galapagos is a paradise for bird watchers and photographers, as the animals display natural behavior without regard for human observers.

Travel between islands on the Flamingo, a yacht built especially for travel in the Galapagos. Daily excursions to eight of the islands allow visitors to walk among sea lions, observe nesting blue-footed boobies, watch albatrosses soar from lava cliffs, and see marine iguanas soaking in the sun. Time will be spent in beautiful Quito, Ecuador during transit to and from the islands. Extensions to Otavalo, Ecuador and Jatun Sacha Rain Forest are also available.

California Redwoods and the High Sierras

Mid-June, 1996

No area in the United States offers more natural history than California, and no part of California offers more exciting scenery and natural wonders than northern California. Extremes dominate this land of mountains and forests, from giant redwood trees 300 feet tall that dominate coastal forests to the 24-inch pygmy cypress trees that grow in the natural bonsai forests near Mendocino; from coastal sand dunes at sunset to high volcanic peaks in the Cascade Range; from historic Victorian cities to wild west gold towns.

In addition, participants will enjoy visiting the beautiful Butterfly Valley Botanic Area with the state's largest colony of cobra lilies, a carnivorous plant unique to California and Oregon. See the magnificent Roosevelt Elk herd, one of the few remaining populations of this incredible animal. Explore volcanically active Mount Lassen, with its high alpine meadows, lava pinnacles, jagged craters, and steaming hot vents. Visit wineries, historic towns and cities, and beautiful San Francisco itself.

South Africa

September 11-26, 1996

The political changes of the past several years have opened up tremendous travel opportunities in this scenic and fascinating country. Sitting on the boundary between the rich and colorful Cape of Africa with 15,000 species of flowering plants, the desert filled with unusual species of succulent plants, and the true African plains with herds of big game animals, South Africa is a country with 300 years of history, fascinating culture, and compelling beauty.

Journey into the "heart of Africa" with explorations of the cycad forests of the Lebowa Highland and Nature Reserve along the Limpopo River where rich floras and abundant wildlife are protected. Spend the night in *rondewels*, the traditional African thatched roof cabins in the magnificent Kruger National Park. Ascend by aerial tramway to the top of Table Mountain, the world famous landmark that has served as a sailors' guidepost for hundreds of years. Travel to the Cape of Good Hope, visit beautiful Betty's Bay, and explore the wine country of the Fransch Hoek Valley, settled in the late 17th century by the French Huguenots. Few trips will give participants such a splendid comparison of the Africa of old with the new Africa of today.

— Larry DeBuhr, Ph.D.,
MBG director of education

New Master Ecologists (kneeling, left to right): Angie Boeker, Valerie Levi, Linda Witt Fries, Jan Taylor. Standing, left to right: Susanne Reed*, Martha Merriman, Joyce Fritze, Janet Dickerson, Donald Schicker, Gina Wischmeyer, Carol Donelan, Ilene Folman, Susan McNary, Roselle Gleason, Sarah Coppersmith*, Dory Rose, Sam Zibit. Not pictured: Charlotte Walker, Gail Portman, Diane Lill, Celeste Prussia.* (* MBG education staff)*

YOU & THE ENVIRONMENT

Master Ecologists Volunteer at Litzsinger Road Ecology Center

IN SEPTEMBER, the first group of Master Ecologists will be certified by the Litzsinger Road Ecology Center. The new docents, who completed their classroom training in May, have been assisting with the Garden's summer youth programs in preparation for working with students at the Center this fall.

Celeste Prussia, director of the Center, said, "The generosity of the Master Ecologists, who give their time to work with students at the Litzsinger Road Ecology Center, is overwhelming. They are exactly the kinds of enthusiastic people we had hoped to recruit when we started the Master Ecologists program last year. These volunteers are driven by curiosity, have an unquenchable thirst for knowledge, and can be relied on to nurture the students and the environment. We look forward to their assistance with training a new group of volunteers in the fall."

More Master Ecologists Are Needed

The Garden's Education Division is looking for more people who enjoy learning about the the natural world, who are interested in improving environmental literacy, and who want to share their enthusiasm and knowledge with students engaged in ecological investigations. Training for a second group of Master Ecologists will begin this fall, on nine Wednesdays from September 13 through November 15.

Each full day of training will include presentations on ecological concepts and activity sessions. The trainees will practice the classroom exercises with students who are doing field study at the Center under the mentorship of Master Ecologists.

All trainees are required to complete the course plus 50 hours of volunteer service at the Center to qualify for certification. Personal enrichment opportunities are offered to participants throughout the year.

The seventeen new Master Ecologists who finished their training last spring are completing their 50-hour requirement by assisting with summer youth programs. Next fall they will help with activities at the Litzsinger Road Ecology Center, led by staff of the Center or by teachers who have received grants to support their students' field study projects.

A ceremony honoring the first class of Master Ecologists will be held during the orientation for new trainees on September 13 at the Litzsinger Road Ecology Center.

How to Apply

Interviews for positions in the fall training class will be held in July and August. To apply, please call the Garden's Education Division, 314-577-5140.

— *Celeste Prussia, director of Litzsinger Road Ecology Center*

"Habitat Helpers" Blooms in Its First Year

LAST SPRING 11 fifth grade students from the local Meramec R-III school district completed "Habitat Helpers,"a special science program at Shaw Arboretum. The group met seven times during the school year to collect prairie plant seed, which they processed, stratified, planted, transplanted, and finally added to a patch of restored prairie at the Arboretum. In the process, they kept journals of the project and learned about seed dispersal, plant and animal interrelationships, adaptations, soils, and other factors that affect the prairie.

Some of the favorite activities from Habitat Helpers included having a burr reed "fight," keeping Jello "mice" warm in winter, sleeping at the log cabins, hiking on the trails, using "nature's crayons" to draw, catching insects on the prairie, going through a hollow tree, and live-trapping meadow voles.

The fun and learning will continue next year, starting in September, when a new group of Habitat Helpers will come to the Arboretum to learn about nature.

— *Miriam Krone, Arboretum Education Staff*

Arboretum Seeks Volunteer Teacher-Naturalists

WOULD YOU ENJOY working with interesting people in a beautiful setting while learning more about the natural world? Do you have time available during weekdays? Shaw Arboretum is looking for enthusiastic, committeed people to volunteer in its education programs.

The volunteer "teacher-naturalists" will teach outdoor classes to school children, focusing on sensory awareness and ecology. A training program for new teacher-naturalists will begin in September. You must enjoy working with children, especially in an outdoor setting; be flexible with a variety of teaching conditions; and possess a keen interest in learning more about natural history. Some knowledge of ecology and natural science would be helpful, but is not necessary. For information on becoming a teacher-naturalist, please call Miriam Krone, Shaw Arboretum's volunteer coordinator, at (314) 451-3512.

Have You Noticed... *Storm Damage to Trees*

CLIFF WILLIS

Many St. Louis homeowners experienced similar problems with their trees: a full canopy of leaves and silty soils combined to lay the trees over when they were hit by severe winds.

THE SEVERE THUNDERSTORMS that swept through St. Louis in May and June damaged trees all over town, including the Garden and Tower Grove Park. The storms on May 17-19 dumped over ten inches of rain on the Garden and combined with severe winds to topple 13 trees on the south side of the grounds, where the strongest winds were localized.

None of the trees that were lost were historically significant or rare. Although the loss of some of our trees was unfortunate, it did create space on the grounds to plant many unusual tree species propagated by the horticulture staff that have been awaiting suitable planting sites. The new species include poplar, *Populus ussuriensis*; Manchurian walnut, *Juglans mandshurica*; Korean pine, *Pinus koraiensis*; American hazel, *Corylus americana*; Chinese redbud, *Cercis chinensis*; and Manchurian cherry, *Prunus mandshurica*.

All of the trees that were toppled were relatively free of pests and diseases and well adapted to the area, with the large full canopy of leaves associated with good health. Actually this worked against the trees during the storms.

The heavy clay soils of St. Louis originally supported a prairie, which tends to limit oxygen uptake and root development in many large trees. Trees are further stressed by the extreme temperature fluctuations of winters in St. Louis. The excessive rains of 1993 and this spring softened soils and further discouraged deep roots. Most of the trees that fell in the storms had root systems within 18 inches of the surface.

After the storms the Horticulture Division had most of the debris cleared away so rapidly that many visitors never noticed the damage. Crews led by supervisors Ben Chu, Jim Cocos, and Shirley Dommer worked during the torrential downpours and slogged through the mud to clear away fallen trees and limbs. Assisting in cleanup operations were Walter Behrendt, Alan Boefer, Greg Cadice, Daryl Cimaglia, Tad Dettmann, Larry Enkoji, Mimi Halloran, Julie Hess, Monica Hoch, Scott McCracken, Todd McMurry, Barbara Patterson, Bill Reininger, Malama Taylor, John Walters, and Darman Williams.

—Boyce Tankersley,
Horticulture Manager

The powerful thunderstorm that swept across St. Louis in the early morning hours of June 10 damaged fewer trees than the May storms, but it took top branches from trees all across the Garden. The oldest remaining whitebud on the grounds was lost, and a large branch from one of the pin oaks fell and knocked a hole in Henry Shaw's 1858 stone wall along Tower Grove Avenue.

LIFF WILLIS

Far left: It took a platoon of horticulture staff and volunteers to load the boojum onto its truck for transport.

Left: the Garden's boojum was planted at Rancho Santa Ana in late April.

The Garden's magnificent specimen boojum, *Fouquieria (Idria) columnaris*, has found a temporary home at Rancho Santa Ana Botanic Garden at Claremont, California, until funds can be raised to build a new Desert House at the Missouri Botanical Garden. The huge desert plant was carefully wrapped for its journey by truck and arrived in California in good condition late in April. It has been planted in the Baja section at Rancho Santa Ana. The boojum is native to Baja California and is endangered in the wild by its narrow range, as well as by overcollection, as the plants are extremely valuable. "We are very grateful to the staff at Rancho Santa Ana, a fellow member of the Center for Plant Conservation's network of Participating Institutions, for offering to maintain our beautiful tree," said Dr. Shannon Smith, director of horticulture. "We know it will be in good hands until we can welcome it home."

June Hutson Is Named Aurelia Schlapp Curator of Perennial Plants

JUNE HUTSON, one of three senior horticulturists at the Garden and a member of the staff since 1976, has been named the Aurelia Schlapp Curator of Perennial Plants. The curatorship, the first of its kind in the Horticulture Division, was made possible by a very generous bequest from the late Mrs. George Schlapp. Mrs. Schlapp passed away in May 1993, and her husband died in August 1994.

Dr. Peter Raven said, "We are very honored that Aurelia remembered us in this way. She and George were long-standing and dear friends, and are truly missed. I take great pleasure in naming June Hutson to this new curatorship, in recognition of her outstanding contributions at the Garden for over 20 years."

Hutson is the author of *Annual Gardening*, a 224-page book illustrated with color photographs, published this spring by Pantheon Books. June has worked everywhere at the Garden except in the Japanese garden, and she is currently responsible for the Shoenberg Temperate House, the Heckman Rock Garden, and the Kassabaum Dwarf Conifer collection.

June gives much of the credit for these beautiful displays to the volunteers who assist her with the endless watering, weeding, and upkeep. "They are absolutely indispensable," she said. "Their skills are wonderful and their dedication is as complete as full-time staff."

CLIFF WILLIS

June is also responsible for the enormous task of choosing the plants for the new demonstration gardens at the William T. Kemper Center for Home Gardening. The first demonstration gardens are being planted this summer, and "The process has been a pleasure because the construction crews have been so efficient," June said. "They have been ready for us and helped us every step of the way."

The biggest challenge she has faced with the new gardens has been locating the tremendous array of species that will be included. "We want to acquaint people with the widest possible variety of plants that will grow in St. Louis," June said. "Encouraging gardeners to try new things and maintaining the greatest possible diversity of species is one of the major goals of the Kemper Center."

June started at the Garden as a volunteer in 1973. In 1976, after completing her associate's degree at Meramec Community College, she got a full-time job working in the Climatron. She confesses to loving perennials, and especially rock gardens, best of all. "A good rock garden," she said, "is created much as a painter paints a picture or a flower arranger combines a bouquet — with creativity plus technical knowledge."

June's latest undertaking is one dear to many Garden members' hearts; last year she purchased the Kirkwood home and garden of the late Edgar Denison, author of *Missouri Wildflowers*. This famous garden, which was featured on a past members' tour, includes dozens of native plants all collected or grown from seed by Mr. Denison. In June's talented hands, this wonderful garden is sure to flourish.

Ronald J. Oyer Is New Director of Development

CLIFF WILLIS

THE GARDEN has announced the appointment of Ronald J. Oyer as its new director of development, effective June 1, 1995. Mr. Oyer is an accomplished professional in the fund raising field, with extensive experience in capital campaigns, strategic planning, deferred gifts, grant writing, direct mail, and major gift solicitation as well as working with volunteers.

Oyer comes to the Garden from St. Mary College in Leavenworth, Kansas, where he served as vice president for Institutional Advancement for the past two years. He has accumulated 22 years of experience in higher education, having served at Syracuse University, The University of Denver, Colorado School of Mines, The University of Wisconsin, and the University of Georgia Systems of Higher Education.

In addition to his experience with academic institutions, Oyer served as executive director of the Denver Zoological Foundation in Denver, Colorado, from 1984–87. During his tenure, membership doubled from 6,000 to 12,000 and the first development office in the history of the zoo had been established.

Oyer became interested in professional fund raising while pursuing his first career as an athletic director at Syracuse University from 1970 to 1975. He earned his undergraduate degree in 1966 from Maxwell School at Syracuse University, which he attended on an athletic scholarship. During his senior year he was the offensive captain of the school's nationally ranked football team, where he shared the backfield with Larry Csonka and Floyd Little. "They ran the ball well and I blocked well," Oyer said with a laugh. A first-team high school All-American running back, Oyer was a starting halfback for Syracuse University from his sophomore year on; as a senior he led the team in rushing for four games until an injury ended his football career and NFL hopes.

Oyer has always been goal-oriented, he says. In addition to his athletic and fund raising careers, he holds a masters degree in administration and graduated second in leadership training at Officers' Candidate School while in the Marine Corps. He was decorated for his service as an infantry officer in Vietnam.

"Fund raising is a career that you consciously choose, it doesn't just happen to you," Oyer said. "You can only raise money when you have a passionate commitment to the cause you are working for. The excellence of the Garden's educational programs, floral displays, and research program all serve to raise people's awareness about conservation of natural resources and heighten their appreciation of plants. I'm looking forward to working with the staff, members, and the Trustees to help the Garden maintain its world class reputation."

Peter H. Raven said, "Ron Oyer is an outstanding individual and we are fortunate to have him at the Garden. He combines professional excellence with his enthusiasm for our mission, and he is familiar with the environmental issues that are so central to everything we do. I join everyone at the Garden in welcoming him to St. Louis."

TRIBUTES
MAR – APR 1995

IN HONOR OF

Mrs. Ann Backer
Dr. and Mrs. I. J. Flance
Ms. Sue Baum
Ms. Sylvia Smith
Laura Blumenfeld
Edie Binder
Joanne and Joel Iskiwitch
Bobbye and Bob Shifrin
Holly Brigham
Karen and Mont Levy
Mr. Leon Brush
Mrs. Shirley Cohen
Mrs. Ann Case
Church of St. Michael and St. George — Susan Mount Guild
Miss Maria Forshall
Miss Kathy DeLassus
Miss Amanda Fedor
Mr. and Mrs. Edward Gardner
Mr. and Mrs. Walter Bendorf
Mrs. Judy Garfinkel
Mr. and Mrs. John Blumenfeld
Mrs. W. Davis Gunter
Mr. and Mrs. Whitelaw Terry
David Hicks
Rowena Clarke Garden Club
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Mr. and Mrs. Harold A. Baumann
Mr. and Mrs. Seaton Hunter
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Delta Zeta Alumnae Chapter of St. Louis
Dr. Maurice Keller
Ellen and Henry Dubinsky
Mrs. Helman C. Wasserman
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Their Grandchildren
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Geraldine and Gideon Schiller
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Monsanto Company
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BEHIND THE SCENES
June Hutson and Ronald Oyer.

Celebrate

"The Year of the Chinese Garden"

Saturday, September 30, 1995
A Gala Evening to Celebrate the Margaret Blanke Grigg Chinese Garden

7 p.m. — Cocktails in Spoehrer Plaza and Tours of the Chinese Garden
8 p.m. — Dinner in the Outdoor Tent at the Ridgway Center
$100 per person, $50 for members under age 35

Entertainment • Open Seating for Cocktails and Dinner Buffet
• Complete Tables of Eight Available on Request •

Dinner Buffet Menu • Regional Chinese Cuisine

Gold Coin Fresh Salmon Cakes • Beef Tenderloin with Oyster Sauce •

Cashew Chicken • Steamed Salmon with Ginger and Black Bean Sauce •

Sandpot of Beef with Wild Mushrooms • Sweet and Sour Shrimp •

Garlic Chicken • Spicy Beef with Glass Noodles •

Chicken in Hot Bean Sauce • Dim Sum • Shrimp Fried Rice •

and much, much more!

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SEPTEMBER /
OCTOBER
1995

VOLUME LXXXIII
NUMBER FIVE

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS AND THEIR ENVIRONMENT, IN ORDER TO PRESERVE AND ENRICH LIFE."

DESPITE THE TERRIBLE HEAT that lingered over St. Louis this past summer, the Garden and its plantings came through beautifully. A lot of work went on out on the grounds in spite of the record temperatures, and I am sure you will enjoy seeing the great progress we have made on the Kemper Center gardens, the Piper Observatory, the Ruth Palmer Blanke Boxwood Garden, and the Margaret Blanke Grigg Chinese Garden. Please be sure to join us on September 30 for a delightful evening to celebrate the debut of the new Chinese garden. A fascinating account of its features and symbolism begins on page 4.

It is a great joy to me personally to announce that in October we will dedicate the new Edgar Anderson Memorial Boxwood Area that has been planted adjacent to the Blanke Boxwood Garden. Dr. Anderson, a former director of the Garden and a truly distinguished botanist and teacher, was an inspiration to many of us. His legacy lives on here at the Garden, especially in the achievements of the students he influenced, including the remarkable men and women of the Boxwood Society of the Midwest. These volunteers have spent the past 25 years proving that yes, you *can* grow boxwood in St. Louis! Please see the account of their extraordinary contributions to horticulture on pages 8-9.

On page 16, Dr. Kayri Havens of the Center for Plant Conservation gives us a closeup look at her activities studying and preserving endangered plant species in the Midwest. And on page 17 we pay our annual tribute to our volunteers with the awards for outstanding service presented at Volunteer Evening.

Just one glance at the calendar of events at the Garden for the next two months gives some idea of how exciting things will be here this fall, and we hope to see you here often. This year we are featuring "Prairie Days" in October, with many of our most popular annual events combined to celebrate the vast native grasslands that once covered our region. And it is my very great pleasure to invite all of our members to meet Sir David Attenborough on September 19, for a preview of his best-selling new book *The Private Lives of Plants*. Sir David is coming to the Garden in advance of his scheduled tour to promote his new book and TBS television series, and we are very pleased and proud to welcome him. I hope your will be able to join us for all of these events this fall!

— Peter H. Raven, Director

EDITH SPINK HONORED BY TRUSTEES — At the June 21 meeting of the Board, Garden Trustee Edith Spink was honored for her work and accomplishments as the Mayor of Ladue, the position from which she retired on April 17. Mrs. Spink's career of public service has spanned more than 20 years. On behalf of the entire Board of Trustees, president John K. Wallace (left) presented Mrs. Spink with a framed Jack Jennings photograph of dogwoods, saying, "We are fortunate for your involvement in the Garden and we look forward to your continuing service here."

Moving?
Please remember to send us your new address.

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On the Cover

Purple coneflowers, Echinacea purpurea, *are hardy natives in bloom at Tower Grove House.*
—Photo by King Schoenfeld

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $45 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118.

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PHOTOS BY CLIFF WILLIS

Lee Family Educational Center Is Dedicated

On July 26, 1995, the Garden dedicated the E. Desmond and Mary Ann Lee Family Educational Center, located at 4475 Castleman. Donors who supported the acquisition and renovation of the Center include Mr. and Mrs. E. Desmond Lee, who gave the naming gift; the partners of Arthur Andersen LLP and Arthur Andersen Consulting LLP; and Mrs. Paul Langenbach.

The Lee Center provides expanded classroom and office space for the Garden's Education Division and Gateway to Gardening, a community service organization that together with the Garden and University Extension forms the Urban Gardening Partnership.

The Lee Center is just two blocks from the Ridgway Center near the corner of Shaw and Vandeventer, where the Garden's new Research Building will be built. The Lee Center is linked with the Garden by a computer network.

In 1994, Mr. and Mrs. Lee funded the E. Desmond Lee Family Educational Program, a partnership among the Garden, the Saint Louis Zoo, and the St. Louis Science Center to improve the quality and quantity of science education in St. Louis. The new Lee Center will help the Garden's Education Division to realize its goals, as its current facilities in the Ridgway Center have been at capacity for some time.

The Education Division has more than doubled the numbers of school children it serves annually since 1982. The Lee Center includes offices, meeting rooms, the large new Langenbach Science Classroom, and the new Arthur Andersen Computer Laboratory.

Arthur Andersen LLP is the largest accounting firm in St. Louis and is the worldwide leader in its field. Andersen Consulting LLP is an international management and technology consultant, the largest such firm in St. Louis. The Garden and Arthur Andersen have been professionally affiliated for 40 years.

The new computer laboratory at the Lee Center opens up a world of educational resources that the Garden could not formerly provide. Students can call up information on rain forest habitats, for instance, use it in activities in the classroom, then visit the nearby Climatron to see the living plants. Students will also be able to create their own video presentations of their classroom projects.

Mrs. Paul Langenbach is a longtime supporter of the Garden's education programs. A former primary school teacher, Mrs. Langenbach deeply believes in the importance of giving youngsters a solid base on which to build future achievements. In 1992 she made a significant gift in memory of her husband to support teacher training at the Garden and provide scholarships to the Henry Shaw Academy.

Dr. Raven said, "We are deeply grateful to the Lee's, to the partners of Arthur Andersen, and to Mrs. Langenbach for making this splendid new facility possible, because it will dramatically expand our ability to serve the St. Louis community." ■

Above: Mary Ann Lee (center) at the reception held in the new Lee Center, with her son, Garden Trustee Andrew C. Taylor, and her daughter, Jo Ann T. Kindle, president of Enterprise Leasing Foundation. E. Desmond Lee was unable to attend.

Above, from left: Larry R. Katzen, managing partner of Arthur Andersen LLP, and James S. Reed, managing partner of Arthur Andersen Consulting LLP, with Peter H. Raven in the Lee Center's Arthur Andersen Computer Laboratory. The new facility will give students access to computerized educational materials and the capability to make videos.

Above: Mrs. Paul Langenbach visits with Peter H. Raven during the reception.

Left: The exterior of the Lee Educational Center at 4475 Castleman. The new building provides urgently needed facilities for the Garden's expanding education programs.

The Margaret Blanke Grigg Chinese Garden

"A Fairy Landscape Unlike Any on Earth"

All summer long, visitors have marvelled at the curving roof and serpentine walls rising to the west of the Lehmann Rose Garden. On September 30, Garden members and guests will have the first opportunity to tour the new Margaret Blanke Grigg Chinese Garden.

Given by Garden Trustee Margaret Grigg Oberheide in memory of her parents, Estelle and Robert Blanke, the "Nanjing China Friendship Garden" pays tribute to the longstanding scientific relationships between the Missouri Botanical Garden and Chinese botanical institutions. The garden also honors the sister city relationship between St. Louis and Nanjing, established in 1979 as the first such relationship between the United States and China. Some of the major features of the new garden were gifts to St. Louis from Nanjing. In return, last year the Garden and the City of St. Louis gave a children's playground to Nanjing.

Five Chinese experts from the Nanjing Municipal Bureau of Urban Parks and Open Space Administration visited the Garden for several weeks this summer to serve as consultants on the project. David Hohman, construction manager for Environmental Planning and Design of Pittsburgh, the firm that oversees the development of the Garden's Master Plan, said, "This is the most authentic Chinese garden of its size we know of in the United States. The level of craftsmanship involved has been absolutely extraordinary."

Many of the elements of the garden were made in China from traditional materials and shipped to the Garden in handmade wooden crates, packed in twists of rope. The pavilion itself, which fits together like a complex Chinese puzzle, was completely fabricated in Nanjing. It was taken apart for shipping, with each piece marked for identification, and reassembled here on site. The hexagonal structure is of cypress-like wood, including the six columns, each of which was made from a single tree. The roof is covered with tiles handfitted between great curving ribs made of tile covered with thin layers of mortar.

All of the tiles used in the construction were fired in China in two or three basic shapes. These were later cut on site to create decorative windowframes, lattices, and roofs. Some tiles were arranged in patterns and filled with colored pebbles shipped from China to create exquisite designs in the paved paths.

The balustrades of wood and white marble also were carved in China, as were the five stone panels mounted like a horizontal scroll painting on the wall behind the pavilion. The spendid carving in low relief depicts a contemporary view of the Confucius temple area in Nanjing, as seen from the Qinhuai River that surrounds the city.

An Ancient Tradition

Landscape design has been of great significance in Chinese culture for more than 2,500 years. Emperors have bankrupted their dynasties building vast gardens; philosophers have portrayed gardens as the reflection of one's character; and the traditional retreats of scholars and gentlemen blend the arts of landscaping with painting, poetry, and calligraphy to an extraordinary degree.

In Taoist philosophy, the pure, light essence of everything in nature is *c'hi*, or "breath." Humankind, balanced between heaven and earth, seeks to experience the spiritual harmony of the universe. Filtered through centuries of Confucianism, Taoism, and later Buddhism, Chinese gardens are designed to be separate from the distractions of daily life, places where people can experience "an eternal moment of suspended time when man and nature seem in perfect accord."**

In traditional Chinese landscape painting, a tiny pavilion almost always appears. Although dwarfed by vast precipitous mountains and waterfalls, the pavilion is a focal point of the composition, representing man's place in the universe. The pavilion, or *t'ing*, is an essential component of a Chinese garden, the resting place where one contemplates nature. The view from the *t'ing* becomes part of the garden, whether it is a panorama of a mountain gorge or a tree glimpsed over a wall. This idea of the "borrowed landscape" helps to unify the garden with nature.

The Chinese term for landscape is *shan shui*, literally "mountains and water." No Chinese garden is without a body of water, no matter how small. The pool or lake is the calm, spiritual heart of the garden. Water is the nurturing, yielding, or *yin* element, a necessary counterpoint to the hard, vertical, or *yang* elements such as the large freestanding boulders placed throughout Chinese gardens. These fantastic pieces of naturally eroded limestone inspire the timeless awe of mountains, while their wonderfully evocative shapes suggest many associations; they seem at once solid and transparent, abstract and sculptural, suggesting animals, faces, or spiritual forces.

Like a landscape painted on a silken scroll, a Chinese garden is experienced as a series of scenes discovered in sequence, rather than as a symmetrical pattern laid out from above. Often Chinese gardens resemble a labyrinth of walled spaces, subtly manipulating perspective to make small spaces seem infinite. Each new vantage point along the path reveals new visual surprises.

Although naturalistic Chinese landscaping was an inspiration to 18th century Europeans, a traditional Chinese garden can bewilder Western eyes accustomed to expanses of grass and flowers. Chinese gardens use plants sparingly, and much of the ground is paved. The viewer is to contemplate the contrasts of light and shade, the sounds of wind in the pines or rain on the lotus leaves, to absorb the special timelessness of the garden.

The Margaret Blanke Grigg Chinese Garden

The Chinese Garden at the Missouri Botanical Garden was designed by the award-winning Chinese American architect Yong Pan, a consultant to Envi-

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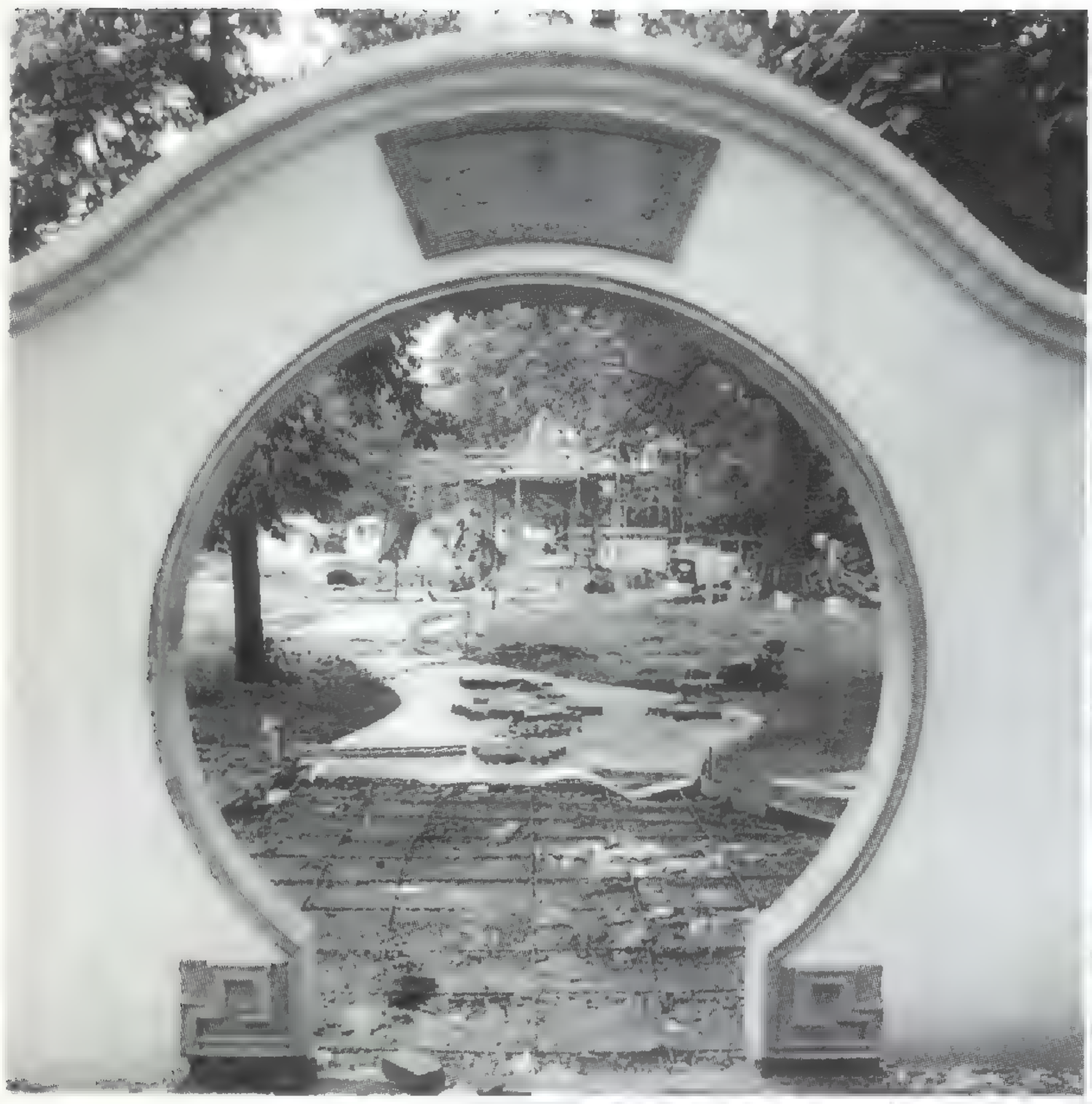
PHOTOS BY CLIFF WILLIS

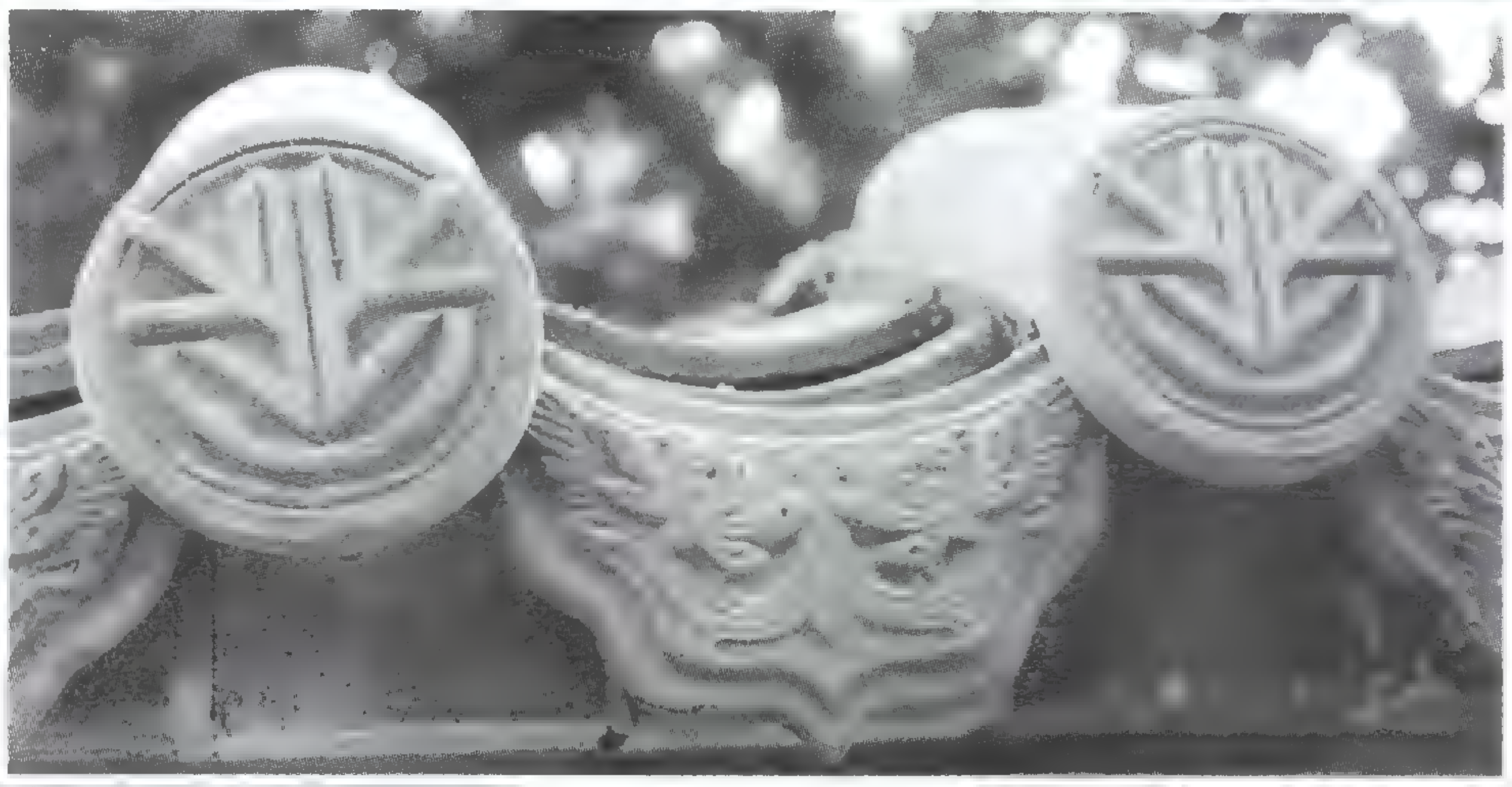


Far left: The Moon Gate frames a view of the pavilion.

Left, top: The phoenix motif, symbol of the empress, adorns the carved wooden roof of the pavilion.

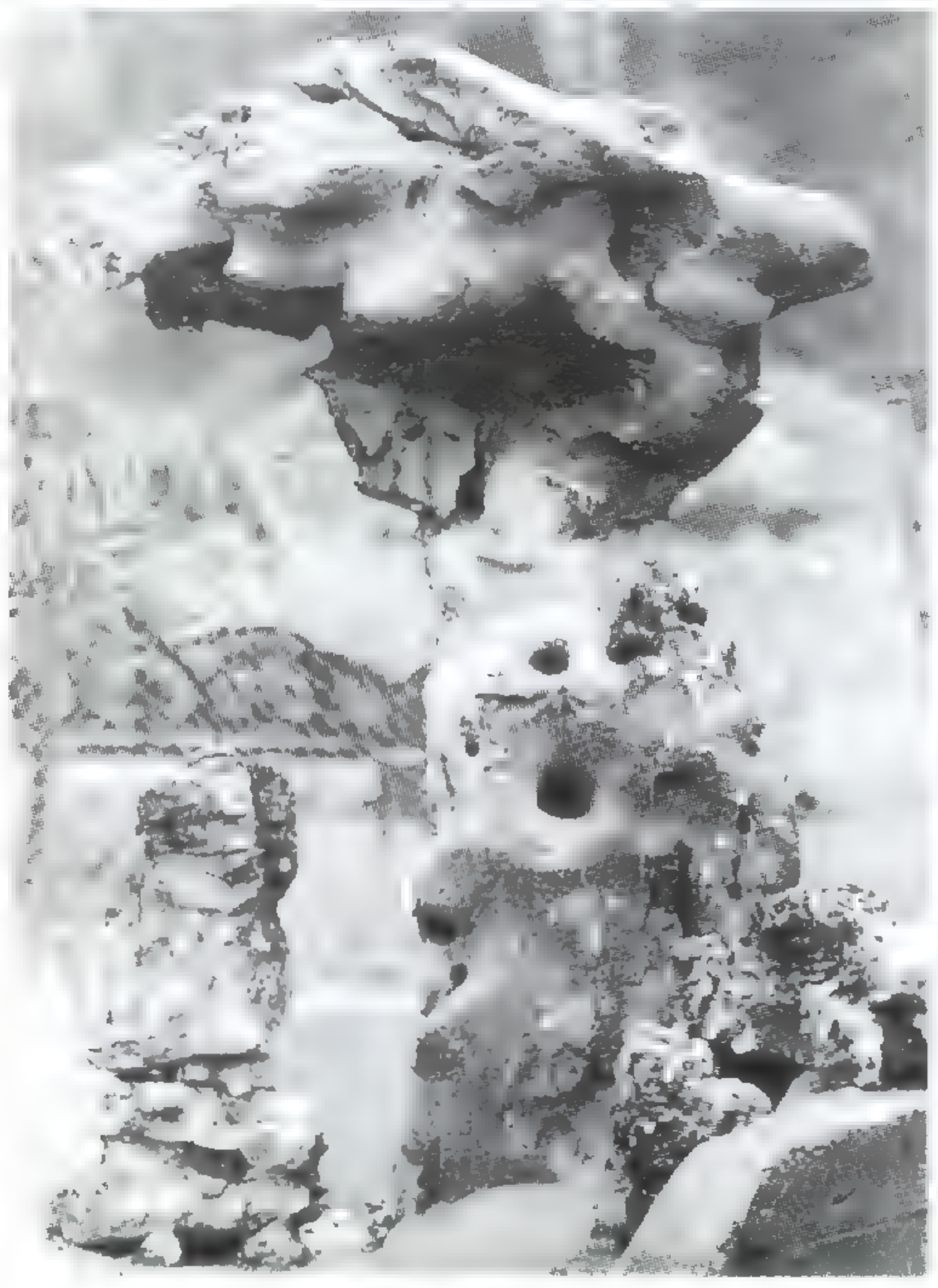
Left: Carved stone panels on the back wall depict a panoramic view of contemporary Nanjing in bas-relief.

Right: A closeup view of the wooden exit gate, intricately carved with lotus flower motifs.
Far right: A glimpse of the pavilion through the decorative lattice of a window in the back wall of the garden.



Far left: The consultants from Nanjing stand beneath the lotus gate. The Chinese toured St. Louis, Chicago, and Los Angeles during their stay and became very friendly with the American workers, who learned to say several words in Chinese.
Left: Ornamental roof tiles feature the Garden logo.

Right: A large boulder of *T'ai hui* stone stands at the head of the stream that flows into the Chinese garden. These stones are an essential part of traditional Chinese gardens.
Far right: The playground in Nanjing, China, a gift from the Garden and the City of St. Louis.



THE CHINESE GARDEN —
continued from page 4

ronmental Planning and Design. Mr. Pan, who was born and educated in China, came to St.Louis in 1984. He is currently a principal of Gaston Pan Associates in Atlanta, Georgia. His design is a sensitive blend of the site here at the Garden with the elements of a traditional Chinese garden.

Visitors to the new Chinese garden will approach it from the William T. Kemper Center along a winding path of Massachusetts bluestone. One enters the garden through a circular opening in the wall, called a moon gate. The opening frames a glimpse of the garden beyond and forces visitors to enter one at a time, emphasizing the sense of entering a special place. The circle is a symbol of perfection to the Chinese, who have a saying, "Flowers are beautiful when the moon is full."

Over the Moon Gate is a traditional fan-shaped stone plaque carved with the characters "Yu Ning Yuan," literally "Friendship Nanjing Garden." The characters were carved on site using stencils made from characters drawn by Liu Hai-su, the famed Chinese calligrapher, who died at the age of 100 the day after completing the lettering for our garden.

> *"Flowers are beautiful when the moon is full."* — *Chinese saying*

The white stucco of the garden walls and the dark tiles along their undulating roofs provide a subtle, monochromatic background to the light and shadows cast upon them, resembling the painted silk of a landscape scroll. On misty mornings or moonlit nights the walls almost disappear; in bright sunlight they are solid and concealing. A group of tall, narrow, vertical stones beside the entrance are meant to resemble a grove of bamboo; a few bamboo may represent an entire forest.

The tiles on top of the walls display the Missouri Botanical Garden logo as part of a charming decorative pattern. A window opening in the right side of the wall frames another view. Although most Chinese gardens are completely walled, here the designer has skillfully integrated traditional elements with the site, using "walls" of plantings on the east and west to join the walls of stucco and tile on the north and south. The great mature trees that grow on the surrounding grounds provide glimpses of "borrowed landscape" that complement the Chinese garden's design.

Chinese architecture is usually arranged symmetrically in series of rooms and courtyards. The gardens, by contrast, are deliberately asymmetrical to emphasize their separation from everyday concerns.

Visitors to our new Chinese garden will proceed from the Moon Gate along a winding path toward the pavilion. The narrow entrance and pathway open out to reveal the central pool and pavilion area, suggesting ancient associations with the entrance to the magical realms of the Immortals.

The central pool, the heart of the garden, is concealed at first by rising ground. The path of bluestone paving is decorated with lovely ornamental designs of pebbles depicting plum blossoms, geometric patterns, birds, and a *yin/yang* symbol placed where the path divides and a monumental stone stands at the edge of the pool. The garden's magnificent stones are called *T'ai hui* after the famous stones taken for centuries from Lake T'ai near Nanjing. These similar boulders are from the nearby Anhui province.

Following the path to the right, an overlook with a white marble balustrade extends like the prow of a ship over the water. The pavement here is ornamented with a splendid inlaid emblem of the phoenix, symbol of the empress. The design's circular shape is echoed by the arched bridge directly across the pool, its moon shape completed by its reflection. On a moonlit night, a philosopher might dip his hand into the water to hold the reflection of the moon in his cupped palm.

The pool itself is irregular in outline to create a natural shape and increase the illusion of size. It is lined with Missouri stones, some placed to resemble islands reflected in the water.

The garden is built in the style of the southern provinces where Nanjing is located. These "private gardens" are distinguished by monochromatic colors of muted grey, white, black, and reddish brown, very different from the elaborate gilded roofs and brilliant reds and greens of Imperial gardens. The roof line of the pavilion is a dramatic swooping shape that seems to float lightly above its base despite its great mass. Its "smiling curves" perfectly echo the upward sweep of tree branches behind the pavilion. The entire roof seems to be suspended from its stylized lotus finial.

The phoenix motif is repeated in the carvings beneath the roof, while the balustrade that forms a back for the seating benches depicts a motif of mountains and bamboo. Many Chinese pavilions are noted for their elaborate and fanciful carvings of animals, dragons, and sea monsters, but this garden is in the more restrained style of the "literary," or scholar's garden. These pavilions traditionally served not only as a retreat where one could study in solitude, but as places for delightful social gatherings, often featuring poetry contests. The pavilions were open on the sides not only to enhance the view, but to capture the cooling breezes from the water below.

To the east of the pavilion, a stream of water winds its way down a slope lined with stones to suggest a rocky mountain gorge, flowing beneath the bridge into the pool. It is important for water in the Chinese garden to seem natural and alive by having a source and an outflow, even if only suggested; here it seems to disappear beneath the edge of the overlook. The bubbling sounds of the stream are a delightful contrast to the quiet pool below.

Because of the *Flora of China* program, Garden members are aware that China has some 30,000 plant species, one of the richest floras in the world. Many of our most familiar horticultural species originated in China, as well as the art of bonsai. Traditional plants have been used throughout the new Chinese garden, including pines, bamboos, willows, plum trees, forsythia, hibiscus, wisteria, peonies, lotuses, rhododendrons, azaleas, camellias, and gardenias, citrus, bonsai, and cymbidium orchids in containers.

At the back of the garden is another stucco wall pierced with four decorative window openings, known as "eyes" of the garden, that provide glimpses of a bamboo grove beyond. Each window is a different shape with a different lattice design. The wall leads to the handsome exit, a carved wooden "Pendulous Lotus Gate" roofed with black tiles and decorated with lotus flower motifs.

On the wall to the right is a tablet of black stone, carved with a poem composed by Pu Jie, the brother of the last Chinese emperor Pu Yi. The original calligraphy is maintained in the Garden's rare book room. Inscriptions of poetry are frequently displayed throughout Chinese scholars' gardens to enhance the visitor's aesthetic experience. A garden without an inscription would be as unthinkable as a Chinese painting without its rows of calligraphy in one corner.

> *"Sitting alone in a secluded bamboo grove,*
> *I was singing while playing the qin**
> *Before realizing, in the deep grove,*
> *The moon had already joined me*
> *With her beautiful light."*

**The qin is a Chinese stringed instrument.*

— Translation by Guanghua Zhu, an MBG doctoral candidate at UM-St. Louis.

The new Chinese garden will be beautiful in all seasons, and each visit is intended to be a delight for all the senses. One is filled with "the sense...of being transported to a fairy landscape quite unlike any other on earth."** ■

** Keswick, Maggie. *The Chinese Garden: History, Art & Architecture*. London: Academy Editions, 1978, 1986. New York: St. Martin's Press, 1986.

Additional information for this article was supplied by Julianna Yuan, lecturer in Asian Art at UM–St. Louis, and Joanne Fogarty of the Missouri Botanical Garden Guides.

September 30, 1995

"Year of the Chinese Garden"

A party celebrating the new Margaret Blanke Grigg Chinese Garden, for the benefit the Missouri Botanical Garden. See page 12 for details.

October 10, 1995

"The Building of the Chinese Garden"

Tours, dinner, and lecture with Julianna Yuan, art historian at UM-St. Louis. See page 13 for details.

PARTNERSHIP CAMPAIGN UPDATE

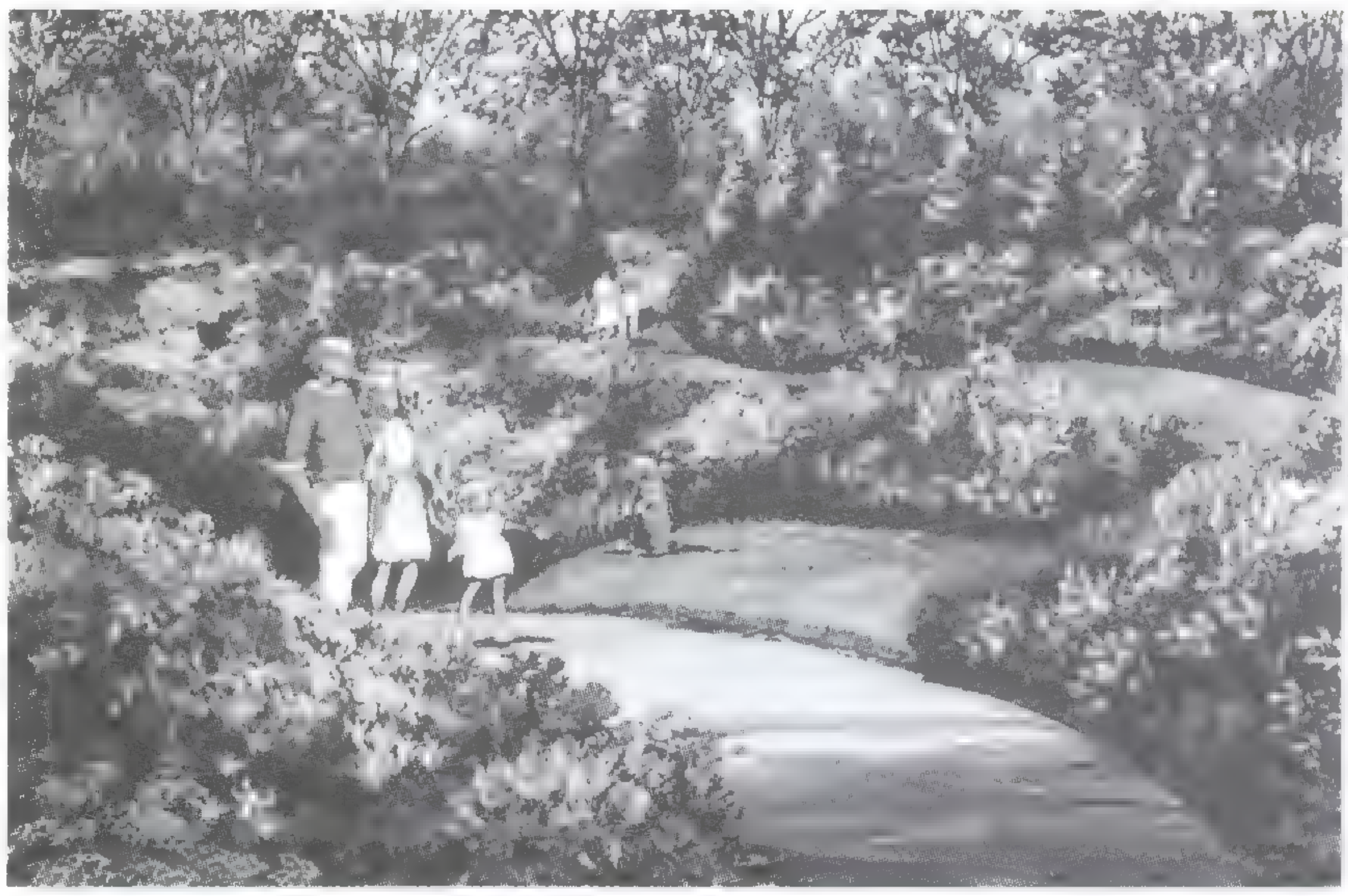
Lopatas Name New Prairie Garden

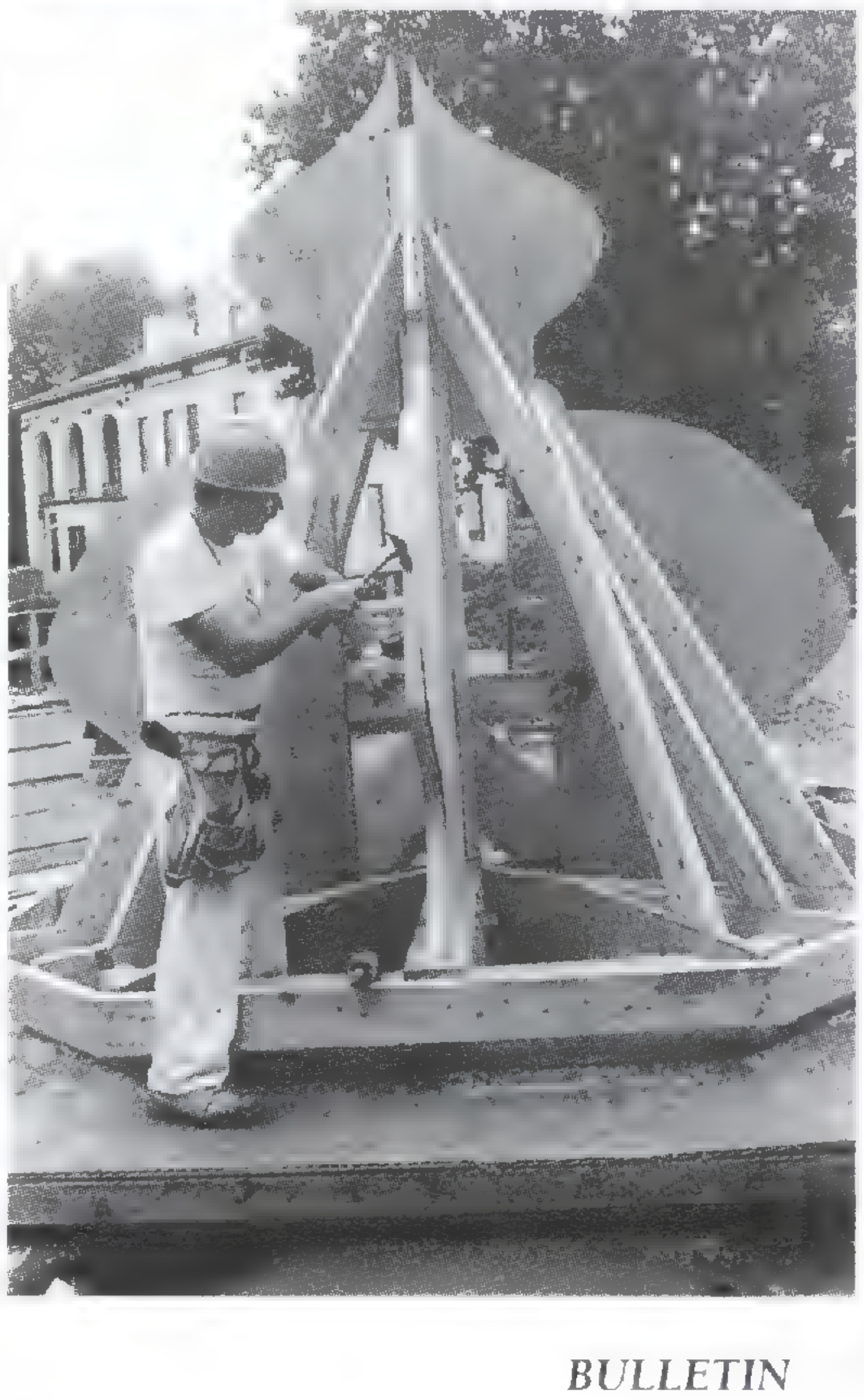
A GENEROUS GIFT to the Partnership Campaign from Lucy and Stanley Lopata has made possible the new Prairie Garden, one of the 23 outdoor demonstration gardens at the William T. Kemper Center for Home Gardening. Mr. and Mrs. Lopata are longtime friends of the Garden; in 1986 they supported construction of the Azalea-Rhododendron Garden near the Ridgway Center tram shelter, and they have provided ongoing support for the Garden over many years.

"We love traveling in the west," said Mrs. Lopata, "and creating a prairie display here at the Garden seemed like a wonderful thing to do." Mr. Lopata, a native St. Louisan, founded the Carboline Company in 1946. He and Mrs. Lopata are noted for their philanthropic support of St. Louis cultural institutions, including the St. Louis Symphony, the Missouri Historical Society, the Arts & Education Council, Washington University, and the Jewish Federation of St. Louis, among many others.

The Lucy and Stanley Lopata Prairie Garden will feature curvilinear paths on a knoll overlooking the Kemper Center Gardens. The display will recreate a portion of the native prairie that existed in Missouri before European settlement and teach visitors how to incorporate native plants into their own perennial gardens. Grass species are important in the Prairie Garden, including little bluestem and sideoats grama. There are also the native wildflowers, or "forbs," including purple coneflowers, prairie blazingstars, black-eyed Susans, and coreopsis tickseed. A whimsical bronze prairie dog by sculptor Robert Lee Walker should look right at home.

Dr. Peter H. Raven said, "Without education about our natural botanical heritage, part of who we are would be lost. Lucy and Stanley Lopata have been such wonderful friends of the Garden and the entire community, I couldn't be more delighted that they have chosen to support this splendid display."





CLIFF WILLIS

THE PIPER OBSERVATORY TAKES SHAPE — This summer an authentic Victorian observatory was under construction just east of the Jennie Latzer Kaeser Memorial Maze. Here, a carpenter works on the distinctive "double onion" dome that will cap the tower. When completed, the observatory will provide visitors with a spectacular view of the interior of the maze. The Victorian observatory is made possible by a gift from Mr. and Mrs. Vernon W. Piper.

The Edgar Anderson Memorial Boxwood Area will be dedicated in October. It will feature varieties and cultivars of Buxus developed and maintained at the Garden.

The Boxwood Society of the Midwest

25 Years of Growing, Learning, and Fun

IN 1965, MARY GAMBLE, a Garden volunteer and member of the St. Louis Herb Society, took special notice of the splendid specimen evergreen shrubs growing near Henry Shaw's mausoleum. "I thought they were the most beautiful plants I had ever seen," she recalls today. Her curiousity aroused, Mrs. Gamble approached Dr. Edgar Anderson, one of the Garden's most renowned botanists and a recognized expert on *Buxus*. The rest, as we say, is history.

Dr. Anderson referred Mrs. Gamble to other experienced boxwood growers and researchers. "Dr. Anderson was an extraordinary teacher," Mrs. Gamble said. "If you took your study seriously, he took *you* seriously. But he never simply answered a question -- he gave you fifteen more!"

Mary Gamble was already an enthusiastic student of horticulture and the editor of the standard manual *How to Grow Herbs in the Midwest*. Two other members of the Herb Society, Jane Penhale and Mary Holekamp, also had a keen interest in boxwood; Mrs. Holekamp and her husband both had been educated in Virginia, home of historic boxwood collections, and Mrs. Penhale had admired boxwood cuttings used as a centerpiece in the Holekamp home. Together the three ladies and about 45 men and women from the Herb Society formed a boxwood study group, and in 1969 they began to cultivate test plants at the Garden.

"The Herb Society took a rather dim view of this at first," Mrs. Gamble remembers. "They had been going since 1941, and they weren't sure they wanted any subgroups." But the study group persisted, and on March 31, 1976, at a meeting held in the Museum Building, the study group incorporated as the Boxwood Society of the Midwest, a non-profit educational organization established to promote the study and cultivation of boxwood.

Their achievements have been extraordinary by any standards. One of only three regional boxwood societies in the United States, the group has registered and named numerous cultivars, exchanged test cuttings with growers in 26 states and Europe, and has successfully established *Buxus* as a viable genus for midwestern gardens. Their herbarium specimens and extensive documentation of the boxwoods at the Garden are an invaluable resource for professional horticulturists and botanists.

Fortunately for the Boxwood Society, in Edgar Anderson the Garden had a distinguished research botanist who specialized in boxwoods. In 1934, while associated with the Arnold Arboretum of Harvard University, Anderson had made a trip to the Balkans, a region with a climate very similar to the American Midwest. Anderson brought back cuttings of hardy strains that were later introduced as *Buxus sempervirens*, including the cultivar 'Vardar Valley', "possibly the greatest boxwood introduction of this century," in Mary Gamble's words.*

"Dr. Anderson introduced us to most of the great boxwood experts," Mrs. Gamble said, "including Dr. John T. Baldwin, Jr. at the College of William & Mary and Dr. Henry T. Skinner, head of the Morris Arboretum. Dr. Skinner, a wonderful and most distinguished man, named the *Buxus microphylla* cultivars 'Morris Midget' and 'Morris Dwarf' and gave some to us. Many boxwoods are so similar that it is impossible to tell them apart without seeing the plant growing; I understand that even Dr. Skinner couldn't tell the 'Morris' cultivars apart from cuttings alone."

The group was also aided by the experts on the Garden's staff, notably the late Paul Kohl, director of horticulture. "Mr. Kohl taught us how to propagate," said Jane Penhale. "He always encouraged us to take slightly larger cuttings, explaining that we gained a year or two of growth that way."

"Mr. Kohl was a gentleman," said Mrs. Gamble. "He always put on his suit coat before coming over to speak to you in the garden, even if you were weeding in your grubbiest clothes! He insisted that we talk about 'the soil,' not just 'dirt.'"

Mrs. Gamble continued, "We couldn't have gotten off the ground without Mr. Kohl. Once, when I came back from Gray Summit with over 200 cuttings, he said to me, 'Mrs. Gamble, don't you think you've been a little enthusiastic?' But he and his staff always encouraged us."

The society's first boxwood garden area contained over 2,000 plants, located where the Ridgway Center parking lot is now. Later it was moved to the site where the Kemper Center is located today. "Walt

Behrendt moved every single plant by hand," Mrs. Penhale said, "and we didn't lose even one. He and Steve Wolff [both members of the horticulture staff for over 20 years] have been wonderful to work with over the years. We used to give parties for the staff on the deck behind the maintenance center."

When the Kemper Center for Home Gardening was built, the boxwood nursery was relocated to an area near the Alfred Avenue fence. With the construction of the outdoor demonstration gardens, some of the specimen plants were sold, others were relocated to the new Edgar Anderson Memorial Boxwood Area that will be dedicated this October.

Throughout the years of hard work and achievement, the Boxwood Society has had an enormous amount of fun, too. Soon after they began, the group was invited to the Clayton home of Mrs. Stratford Lee Morton, a longtime friend of the Garden and a boxwood enthusiast. "Mrs. Morton was just lovely to us," Mrs. Penhale remembered. "She had over 40 of us for an elegant dinner party at her home, where she had a magnificent collection of boxwood. Later she offered us the use of a walled garden at her estate at Persimmon Hill in Gray Summit, to be used as a boxwood nursery. Unfortunately it didn't work out, as the clay hardpan didn't allow sufficient drainage."

In addition to their weekly sessions working in the test gardens, the group took regular field trips throughout the region to visit other boxwood growers and make cuttings. "We made regular visits to William and Mary Harrison at their estate, 'Harrison Hill,' which overlooked the river at Hermann, Missouri," said Mrs. Gamble. "Bill Harrison taught us how to prune by 'plucking' the tips of the branches by hand. It took forever, but the results were perfect!"

Other friends and supporters included Charles Main of Karnak, Illinois; H. J. Hohman of Kingsville Nurseries, Kingsville, Maryland; Clarence Barbré of Webster Groves; and many others.

On April 26, 1986 the society held its tenth anniversary celebration at the Flora Gate House (now Spink Pavilion), co-chaired by Jane Coultas and Laverne Jaudes, where they announced the registration of the cultivar *B. sempervirens* 'Mary Gamble'.

Jane Penhale said, "The first cultivar we ever named was *Buxus sempervirens* 'Ste. Genevieve'. We felt that in order to name a cultivar for hardiness in the Midwest, we needed to grow it for seven years. To establish, or name, a clone, you must submit a written history and description of the plant and a specimen cutting to the International Registration Authority for *Buxus*." Mary Gamble, who submitted the application for 'Ste. Genevieve', added, "I didn't really know what I was doing, and I think it was just dumb luck!"

In 1983 members of the society presented a program to the American Boxwood Society (ABS) in Williamsburg, Virginia; later Mary Gamble and Mary Holekamp were elected to the ABS board. In May 1987 the ABS held its annual meeting here at the Garden. The Boxwood Society hosted the event with tours of the Garden and a dinner in honor of Koichi Kawana, the designer of the Japanese garden, where boxwoods are such an important element.

Over the years, in addition to their weekly work in the boxwood nursery and semi-annual trips to visit outstanding boxwood gardens and nurseries, the Boxwood Society published a newletter, organized a speakers' bureau, and offered classes on boxwood at the Garden. They experimented with using boxwood as a topiary medium and as a container-grown plant.

No account would be complete without acknowledging the contributions of Charlotte Ballard, who was in charge of the test nursery throughout most of the study period, assisted by Claude Badeusz. John Ansboro, who served as president for more years than anyone else, arranged many of the society's excursions and tours. Over the years there have been so many men and women who have contributed their time and energy, it is impossible to name them all.

As Dr. Anderson said, according to Mary Gamble, "To be a boxwooder, you first need to be a character." Perhaps this is best exemplified by a ditty written by her late husband D. Goodrich Gamble, after an outing to a nursery in Illinois:

"Chiggers infest me,
They bite night and day;
They try to digest me,
Why didn't I spray?
A chigger bites bigger
Than I thought it could,
I'm gory and sorry
I pruned boxwood."

Above: Laverne Jaudes tends plants in the Boxwood Nursery. The plants in the picture were* Buxus microphylla *var.* japonica *that had been maintained by Paul Kohl in four-inch pots for 19 years for use in Garden flower shows. After Mr. Kohl gave the plants to the Boxwood Society, they grew to the size shown here within ten years.

Below: The splendid boxwood garden of Mrs. Stratford Lee Morton was an inspiration to the fledgling boxwood study group.

The Edgar Anderson Memorial Boxwood Area

In October, the Garden will dedicate a boxwood display adjacent to the new Ruth Palmer Blanke Boxwood Garden. It will include plantings of important boxwoods developed at the Missouri Botanical Garden over the years, with a bench in memory of Dr. Edgar Anderson. Featured cultivars will include those named by the Boxwood Society of the Midwest: 'Ste. Genevieve', 'Mary Gamble', 'Edgar Anderson', 'Hermann Von Schrenk', 'Sunlight', and 'Joy'. All members are encouraged to visit the display to learn more about boxwood and the Boxwood Society's extraordinary achievement.

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* *For a definitive account of midwestern* Buxus, *see Mary A. Gamble, "Boxwood,"* Missouri Botanical Garden *Bulletin, Vol. LXXVI, No. 3 (March/April 1988):8–10*

CLIMBERS & CREEPERS: VINES

I LOVE VINES. Their wonderful variety of shapes, textures, foliage, and flowers can add great charm to a garden and vines are a wonderful solution to many landscaping problems, but they are not for the faint of heart! Vines go where they want to go and do what they want to do. Choose them wisely, or they can create problems you will be fighting for years to come.

In general, vines are not destructive to healthy trees, although we recommend that they be allowed to grow no higher up the trunk than you can reach with a ladder. If vines grow into existing cracks in walls they can make the crumbling worse, but the vines recommended here are not parasitic and will not damage sound masonry.

Be Creative

Vines make wonderful screens in narrow places and can add interest to a bare wall. Train some over a trellis or up into trees to provide added color and texture. Vines are unequaled for growing over fences or rocks and many make good ground covers.

Tender tropicals and annual vines can be grown in pots with a trellis, brought indoors for the winter, cut back in spring, and set out again next year.

Vines can also play a role in environmental landscaping. Use them to shade a south or west wall of the house to reduce heat transfer and save on cooling bills, or use them to cover an arbor to provide shade for the patio.

You can make a vine-covered fort or teepee for the kids using edible beans, cucumbers, or gourds for an added bonus. Be creative and experiment; simple trellises can be made from pruned branches or other salvaged materials sunk into the ground and planted with vines for a wonderful screen.

Selecting Vines

Make your selections based on how vines will be used in your garden. For winter color, an evergreen vine is ideal. Where you want the sun to shine through in the winter, perhaps on a south-facing brick wall or over a patio, select a deciduous vine. Deciduous woody perennials provide quick green-up in the spring but need space, as they have a tendency to grow rampant unless they are cut back periodically. An herbaceous perennial vine that dies back to the ground each winter is easier to control but takes time to regrow each year.

Evergreens

English ivy, *Hedera helix*, is very common in St. Louis. Some people love it, others hate it. It provides dense cover for large areas, grows very well in heavy shade, and is easily pruned back when necessary. Keep it off wood siding, trim, and shutters, but it will not damage sound masonry or healthy trees. Each spring I cut mine back five or six feet, and it fills in by fall.

Wintercreeper, *Euonymus fortunei*, also grows well in heavy shade and can be treated like English ivy. Watch it for scale infestations, which begin as small white spots on the leaves. Later the leaves will turn yellow and drop. Horticultural oils can be used to control scale.

Japanese honeysuckle, *Lonicera japonica*, remains green in mild winters but may be semi-evergreen in more severe winters in St. Louis. Its wonderfully scented flowers are a delight, but it is a fast-growing vine that can crowd out native wildflowers when it spreads into wooded areas. Many conservationists hate it with a passion. If you choose Japanese honeysuckle, plant it where it can be cut back and contained. The cultivar 'Halliana' has white flowers which turn yellow as they age. It needs a support to twine over.

A more manageable honeysuckle is the native Missouri trumpet honeysuckle, *Lonicera sempervirens*. It bears two-inch long red to red-orange trumpet shaped flowers in heavy terminal clusters during April and then sporadically until frost. The flowers are scentless but are highly attractive to hummingbirds. The vine will remain semi-evergreen in all but the most severe winters. It is drought tolerant once established.

Crossvine, *Bignonia capreolata*, is a member of the Bignoniaceae family, which includes many vines much more common to the tropics than to Missouri. It is nearly evergreen, but in hard winters its leaves may turn an unattractive brown. It is redeemed in April when it bears its lightly scented, funnel-shaped flowers with a scent reminiscent of chocolate or maple syrup. It is a vigorous climber native to southern Illinois and southeast Missouri, and it must be cut back regularly or it will climb to the tops of tall trees. It tolerates shade but flowers best in only partial shade.

Deciduous perennials

Some deciduous vines will fasten themselves to brick and stone and do not need additional support. In autumn the purple to crimson-red Virginia creeper, *Parthenocissus quinquefolia*, and Boston ivy, *Parthenosissus tricuspidata*, look stunning on large stone and brick buildings or climbing up mature trees. They are best used where they have room to spread.

The magnificent climbing hydrangea, *Hydrangea petiolaris*, is certainly one of the jewels among deciduous vines. It is slow to establish but can grow to over 60 feet in height. It can be kept in bounds with pruning when necessary. Climbing hydrangea tolerates shade and produces panicles of white flowers in July. It is spectacular growing on stone walls or on mature trees. It can also be used as a ground cover or cascading over a wall.

Other woody vines need a trellis support. Two of the most popular, roses and wisteria, have very special needs that will require future articles all to themselves.

Actinidia kolomikta, related to the kiwi fruit, has a handsome and unusual foliage with irregular wide bands of white and pink at maturity. It grows only about 15 feet tall and forms dense shade. It benefits by having some shade during the heat of the day.

A more vigorous grower is porcelain berry, *Ampelopsis brevipedunculata*, which grows to 20 feet or more. The leaves are three- or five-lobed with a mottled blend of green, pink and white that is striking against a dark background. The cultivar 'Elegans' is less vigorous but has beautiful variegated foliage and blue berries in the fall.

I love trumpet creeper, *Campsis radicans*, for its attractive foliage and bright orange tubular flowers that transport me to the tropics, but the vacation can quickly be cut short! Because trumpet creeper will quickly grow to 40 feet in any kind of soil and spreads by underground suckers, it can quickly become a pest. If you have the room, let it go and enjoy the flowers and the hummingbirds they attract.

Two other rampant growers can be grapes, *Vitis*, and hops, *Humulus lupulus*. Hops is a vigorous grower and needs a strong trellis. The flowers are not particularly showy but the foliage and festive fruits are attractive. The cultivar 'Aureus' has golden yellow leaves. Common hops should not be confused with Japanese hops, *Humulus japonicus*, which is an invasive pest in woodland areas and is not suitable for home horticulture.

A whole article could be written just on clematis. For early summer blooms try the deciduous white flowered anemone clematis, *Clematis montana*, or *C. m.* 'Rubens', which has pink flowers. Prune after flowering, as this clematis flowers on last year's wood.

For fall flowering try sweet autumn clematis, *C. paniculata*. In September it is engulfed in small, white, sweetly scented flowers. This woody deciduous vine can be severely cut back in the spring and it will still flower in the fall because it blooms on new wood. Clematis does best with its head in full sun and its roots kept cool with mulch.

Herbaceous perennials

Herbaceous perennial vines come back year after year but take time to provide cover. Because they die back, they are less likely to become rampant than the woody vines. In June, the beautiful violet-purple flowers of *Clematis ∞ jackmanii* herald summer. Clematis cultivars abound, and some good choices for St. Louis are 'Henryi' with white flowers and dark stamens, and 'Nelly Moser', light pink with a darker stripe and red anthers. All clematis prefer cool roots.

Annuals

Many of my favorite vines are annuals. They flower the first year from seed and usually give lots of color. The morning glories are a good example; an old standby that I love is the aptly named *Ipomoea tricolor* 'Heavenly Blue'. For bright red flowers attractive to hummingbirds try red morning glory, *Ipomoea coccinea*, cardinal climber, *I. ∞ multifida*; or cypress vine, *I. quamoclit*. For large white flowers which open at night, try the stunning moonvine, *I. alba*.

A good annual for the heat is *Thunbergia alata*. This year I have a white flowered cultivar growing in a pot of bamboo. Other fun choices are cup and saucer vine, *Cobaea scandens*; hyacinth bean, *Dolichos lablab*; and scarlet runner bean, *Phaseolus coccineus*. Snail vine, *Vigna caracalla*, has lightly scented blossoms that resemble snails. It's always fun to try something new!

Don't overlook tropical perennials, which can be grown as summer annual vines. Those available at your nursery or garden center include golden trumpet, *Allamanda cathartica*; coral vine, *Antigonon leptopus*; bleeding heart vine, *Clerodendrum thomsoniae*; and *Mandevilla*, also sold as *Dipladenia*. They all prefer full sun and do well in the heat and humidity of St. Louis summers. Plants grown in pots can be brought inside for the winter, or cuttings can be taken in late summer and rooted for overwintering indoors.

More Information

For more information on selecting and growing vines, I recommend *Gardening with Groundcovers and Vines*, by Allen Lacy, and *Flowering, Fruiting & Foliage Vines*, by Chuck and Barbara Crandall. Both are available in the Garden Gate Shop.

— Glenn Kopp,
coordinator of adult education,
Kemper Center for Home Gardening

TELEPHONE HELP

The Garden has several telephone services available to assist you.

GardenLine 577-9400
24-hour recorded information about Garden events, hours, admission and directions. Outside area code 314, call **1-800-642-8842** toll free, 24 hours a day.

Horticultural Answer Service (314)577-5143
Monday through Friday, 9:00 a.m. to noon, Master Gardeners are on hand to answer your gardening questions.

Master Composter Hotline (314) 577-9555
9:00 a.m. to noon, Monday through Friday. Specially trained Master Gardeners are on hand to answer your questions about yard waste management techniques. After hours leave a message and your call will be returned. The Master Composter program is supported by the Monsanto Fund.

HortLine (314) 776-5522
24-hour recorded gardening information is available with a touch tone telephone. You will need a brochure listing the hundreds of HortLine topics in order to use the service; you may request a **brochure by calling the Kemper Center for Home Gardening** at (314) 577-9440, 10 a.m. to 4 p.m. daily, or send a stamped, self-addressed envelope to HortLine, Kemper Center for Home Gardening, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

The William T. Kemper Center for Home Gardening is open 10 a.m. to 4 p.m. daily. Admission is free with regular Garden admission. For information on classes and activities at the Center, please call (314) 577-9440.

The Plant Doctor is available at the Kemper Center for walk-in consultations from 10 a.m. to noon and 1 to 3 p.m. Monday through Saturday.

Call HortLine for recorded gardening information 24 hours a day! For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

Calendar

september 19 tuesday

Special Preview: "The Private Life of Plants" with Sir David Attenborough

6:30 p.m., Lecture in Shoenberg Auditorium, followed by book signing in Monsanto Hall.

The Missouri Botanical Garden is proud to invite its members and the public to meet the celebrated writer/filmmaker Sir David Attenborough and to attend the first U.S. preview of his magnificent new book *The Private Life of Plants*, published in the U.S. by Princeton University Press. The book is based on Attenborough's new six-part television series that will air October 9-25 on TBS.

Sir David has given millions of readers and viewers around the world an intimate look at the remarkably complex world of nature with his famous "Life on Earth" series. *The Private Life of Plants*, on the London *Times*'s bestseller list for the last four months, focuses on the extraordinary strategies plants devise to compete for territory, mates, and food, an account sure to be "full of delights and surprises, even for those who thought they knew about the seemingly passive green world around us." (Prof. Grenville Lucas, Royal Botanic Gardens, Kew)

Sir David's lecture will be accompanied by glorious photos and video from his book and television series. Admission to the lecture is free, but seating is limited and tickets are required; please call (314) 577-5141 for ticket information.

september 30 saturday

Evening of Enchantment: "Year of the Chinese Garden"

Celebrating the new Margaret Blanke Grigg Chinese Garden. 7 p.m., cocktails in Spoehrer Plaza and tours of the Chinese garden; 8 p.m., dinner in the outdoor tent at Ridgway Center. Celebrate the new Chinese Garden with a gala party, featuring music, entertainment, and regional Chinese cuisine. $100 per person, to benefit the Garden. Open seating; tables of eight available on request. Please call (314) 577-9500 for information and reservations.

Members' Days

september 22 *Moonlight Stroll*

9 to 11 p.m., grounds. Bring a flashlight to guide your way and enjoy the Garden by the light of a beautiful fall moon. Cash bar. Free, for members only.

Optional Dinner Buffet –
6 to 8 p.m., Gardenview Restaurant. Before you stroll the Garden in the moonlight, enjoy a sumptuous buffet supper. $10.95 per person, with open seating. No reservations.

october 18 *Harvest Decorating*

1 p.m., Shoenberg Auditorium. Join Connie Gooch, AIFD, floral director of Schnucks Markets, and Rhonda Plannett, floral design coordinator at Schnucks, for demonstrations of festive tabletop designs perfect for holiday decorating. Attendance drawings. Seating is on a first-come, first-served basis. Free, for members only.

september 2 - 4

labor day weekend

Japanese Festival

10 a.m. to 10 p.m. daily. The 21st annual celebration of the culture, arts, dance, food, and music of Japan, co-sponsored by Merrill Lynch and Company, Inc. and a coalition of Japanese American community organizations. $6 for adults; $4.50 for seniors age 65 and over; $2 for Garden members. Children ages 12 and under are admitted free and must be accompanied by an adult. Some Festival programs require tickets to be purchased separately.

september 9 saturday

Native Plant Sale

11:30 a.m. to 5 p.m., Shaw Arboretum, Gray Summit, Missouri. An outstanding selection of native species from the finest area nurseries and growers. Regular Arboretum admission.

september 9 & 10

saturday and sunday

Gardeners of America Flower Show

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. Free with Garden admission.

september 11 monday

Exhibit: Photographs by Sir Peter Smithers

9 a.m. to 5 p.m. daily through September 29, Monsanto Hall. Magnificent over-life-size color photographs of flowers by the renowned nature photographer Sir Peter Smithers. Free with Garden admission.

september 14 - 17

thursday - sunday

Fall Bulb Sale

9 a.m. to 6 p.m., Thursday and Friday; 9 a.m. to 5 p.m., Saturday and Sunday; Garden Gate Shop. Members take 20% off all plants and merchandise, all four days. See page 19 for details.

september 17 sunday

Daylily Association Plant Sale

9 a.m. until supplies are sold out, in the Beaumont Room, Ridgway Center. Just in time for fall planting, the Missouri Botanical Garden Daylily Society holds its annual sale of surplus plants from the Jenkins Daylily Garden. All proceeds benefit the Garden. Shop early for best selection!

september 23 & 24

saturday & sunday

Dahlia Society Show

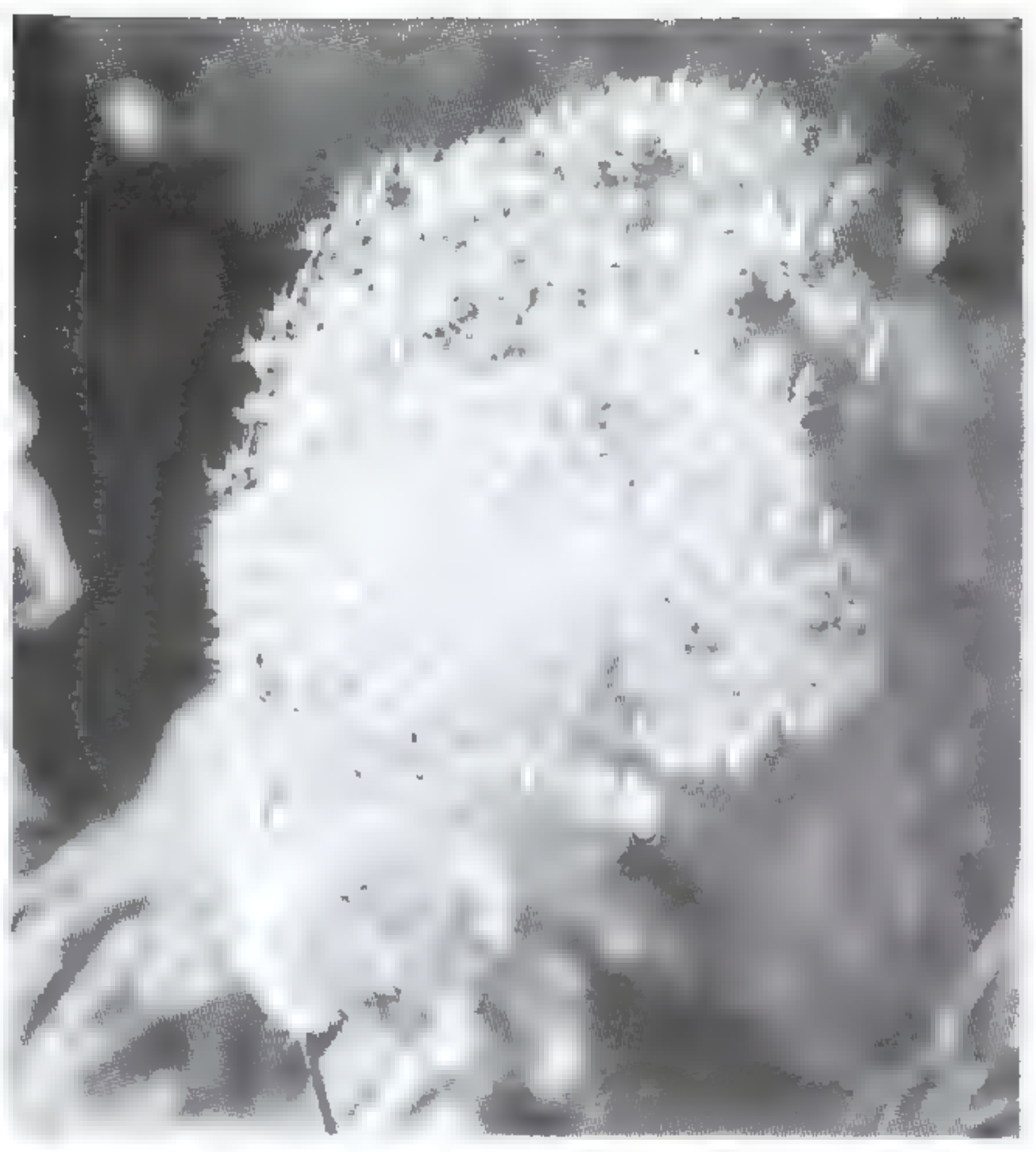
9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. The Dahlia Society of Greater St. Louis presents its spectacular and colorful annual flower show. Free with Garden admission.

september 30 – oct. 1

saturday & sunday

Gesneriad Society Show

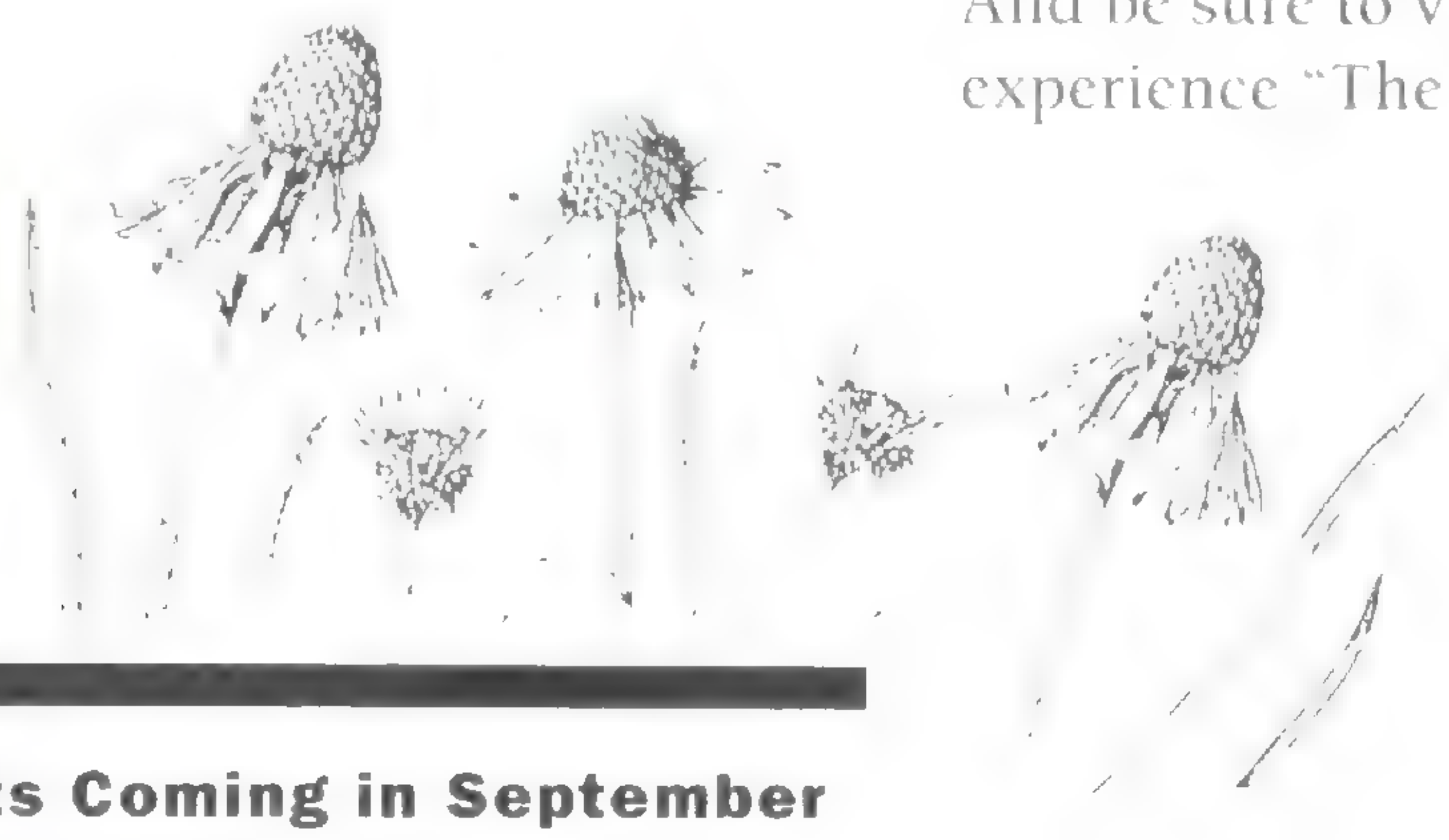
9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. The Gateway West Gesneriad Society displays the popular "African Violet" plant family. Free with Garden admission.



October Prairie Days

"The prairie sings to me in the forenoon and I know in the night
I rest easy in the prairie arms, on the prairie heart." — Carl Sandburg, *Prairie*

It is estimated that at one time a quarter of the Earth's land was grassland. Celebrate our native American grasslands with a series of events this fall, including:
"Best of Missouri" Market, October 14–15
Exhibit of paintings of Shaw Arboretum by John Odell, October 19 – November 17
Fall Flower Show, "The Great American Prairie," October 21 –November 12
Lecture by Doug Ladd of The Nature Conservancy, October 21
And be sure to visit the restored tallgrass prairie at Shaw Arboretum this fall to experience "The Great American Prairie."



New Exhibits Coming in September

Brookings Interpretive Center

9 a.m. to 5 p.m. daily, Brookings Interpretive Center. Be sure to keep an eye on the new permanent exhibits being installed in the Brookings Center between the Climatron and the Shoenberg Temperate House. This wonderful series of interpretive exhibits will open in November, but visitors are invited to walk through and monitor the installation in progress beginning mid-September. Watch for details in the next issue of the *Bulletin*.

continuing

"A Change in the Air"

9 a.m. to 5 p.m. daily in Monsanto Hall. A panel display on air pollution control by the Missouri Department of Natural Resources.

daily in september

10 a.m. to 4 p.m. daily in the William T. Kemper Center for Home Gardening:

"Naturescaping"

A new eight-panel exhibit produced in cooperation with the Missouri Department of Conservation.

"Integrated Pest Management"

A new panel display prepared in cooperation with University Extension.

october 8 sunday

Concert Series: "From the Garden, Live!"

12 noon, Shoenberg Auditorium. Classic 99 KFUO-FM is once again presenting its popular series of radio concerts broadcast live from the Garden. Today's performance is Vivaldi's "Four Seasons" with David Halen. Free on a first-come, first-served basis, but tickets are required; listen to KFUO-FM for locations where tickets may be obtained, or call (314) 725-0099. Tickets will not be available at the Garden.

october 10 tuesday

Lecture: "The Building of the Chinese Garden"

Self-guided tours at 5:30 p.m.; program following in Spink Pavilion. Art historian Julianna Yuan will give an insider's view of the building of the new Margaret Blanke Grigg Chinese Garden. Yuan, lecturer in Asian art history at University of Missouri–St. Louis, has led two study tours of the gardens of China. The program is co-sponsered by the Asian Art Society of UM-St. Louis and Washington University, the Nanjing-St. Louis Sister City Committee, and the Missouri Botanical Garden. $30 per person for dinner and lecture; please call 935-5156 for reservations and information.

october 14 & 15

saturday & sunday

"Best of Missouri" Market

9 a.m. to 5 p.m. daily, Ridgway Center and grounds. Enjoy the fourth annual celebration of Missouri growers and craftsmen, plus the Historic Shaw Art Fair! See page 15 for details.

october 15 sunday

Concert Series: "From the Garden, Live!"

12 noon, Shoenberg Auditorium. Webster Wind Quintet & Piano. See October 8 for details.

continued on next page

Calendar

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october 19 thursday

Prairie Days Exhibit: Paintings by John Odell

9 a.m. to 5 p.m. daily through November 17, Monsanto Hall. Celebrate "Prairie Days" with an exhibit of 30 paintings of Shaw Arboretum by St. Louis artist John Odell, an award-winning painter of impressionistic views of regional landscapes and wildlife. Free with Garden admission.

october 20 friday

Members' Preview: Fall Flower Show

5:30 to 7:30 p.m., Ridgway Center. Entertainment, cash bar. Garden Gate Shop will be open; dinner buffet available in Gardenview Restaurant. Free, for members only. See October 21 – November 12 for details.

october 21 saturday

Lecture and Book Signing: "Tallgrass Prairie Wildflowers"

1 p.m., Lecture in Shoenberg Auditorium, followed by book signing. Continue the Prairie Days celebration with a slide lecture by Doug Ladd, author of *Tallgrass Prairie Wildflowers: A Falcon Field Guide*. Mr. Ladd, a delightful and entertaining speaker, is director of science and stewardship for The Nature Conservancy of Missouri and a research associate of the Garden and the Morton Arboretum in Chicago. The new guide features color photographs of more than 295 flowers and grasses from a 13-state region of the Midwest, including plant names, descriptions, and locater maps, arranged for quick identification. The publisher, Falcon Press, is donating five percent of the sales proceeds to benefit The Nature Conservancy. Admission is free, on a first-come, first-served basis.

october 22 sunday

Concert Series: "From the Garden, Live!"

12 noon, Shoenberg Auditorium. A Piano String Trio featuring Melissa Brooks, cello. See October 8 for details.

october 29 sunday

Concert Series: "From the Garden, Live!"

12 noon, Shoenberg Auditorium. Duets for Flute and Voice, featuring Jan Gippo and Jan Prokof. See October 8 for details.

october 21 – november 12

Fall Flower Show: "The Great American Prairie"

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. A striking and unusual exhibit featuring two dozen species of hardy native prairie grasses and flowers, selected for fall color. Traditionalists will also find colorful chrysanthemums, amaranths, salvias, sunflowers, and other seasonal favorites in profusion. Lifesize animals in silhouettes of weathered iron by sculptor Don Dietrich will highlight the exhibit, depicting bison, antelope, prairie chickens, box turtles, and more. Free with Garden admission.

every day at the garden

Free Walking Tours

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a fascinating tour of the Garden. Free with regular admission.

wednesdays & saturdays

Garden Walkers' Breakfast

7 a.m., grounds. In cooperation with the American Heart Association, the grounds open early every Wednesday and Saturday morning to encourage fitness walking. Greenhouses open at 9 a.m. Breakfast is available for purchase in the Gardenview Restaurant, 7 to 10:30 a.m.

Landscape Design Course IV Offered

THE FOURTH IN A SERIES of four courses on landscape design is being offered at the William T. Kemper Center for Home Gardening on October 2-3, with an optional written examination on October 4. Intended for both professional horticulturists and home gardeners, the course is sponsored by The Federated Garden Clubs of Missouri, the Missouri Landscape Design Critics Council, and the Missouri Botanical Garden, in cooperation with the National Council of State Garden Clubs, Inc.

This year's course will once again feature Dr. Neil Odenwald, professor of landscape architecture at Louisiana State University and noted author, who will speak on redesign of areas, contemporary design, and residential landscaping. St. Louis landscape experts will lead walking tours of several private gardens and of the new demonstration gardens at the Kemper Center, and speakers will include several members of the Garden's horticulture staff.

Participation is limited to 70 persons. For information on fees and registration, please call Reba Beaver, (314) 532-3232, or Nancy O'Brien, (314) 821-8545.

CLIFF WILLIS

Garden Hosts Elderhostel

In June the Garden hosted its second annual summer course for Elderhostel, a national educational travel program for older adults. The week-long course of lectures and tours was offered in conjuction with St. Louis University and the Saint Louis Zoo. Participants are shown above visiting the Garden's Shoenberg Temperate House. The program at the Garden featured biology and ecology of plants and plant communities.

A New Brochure on the Japanese Garden

THE JAPANESE GARDEN
SEIWA-EN
Garden of pure clear harmony
Missouri Botanical Garden

With support from the Japanese American Citizens League, the Garden has produced a brochure on the symbolism, history, and traditions embodied in *Seiwa-en*, "garden of pure, clear harmony and peace." The free brochure is available at the Information Desk in the Ridgway Center lobby.

Fourth Annual

"Best of Missouri" Market

Saturday & Sunday, October 14 & 15, 1995

9 a.m. to 5 p.m.

Admission: $2 per person for members; $5 per person adults, $3 age 65 and older (includes Garden admission); children under 12 free.

Sponsored by: ***Commerce Bank; Premier Homes;*** *Boatmen's National Bank of St. Louis; St. Louis County Farm Bureau*

SPECIAL ACTIVITIES

Petting Farm, Milk-a-Cow Booth, Mules, Puppet Show, Agriculture Displays

FOOD

Southwest Chicken Breast Sandwich, Jalapeno Cheeseburger, Baked Beans, Potato Wedges, Cole Slaw, Hot Dogs, Jumbo Pretzels, Soft Drinks & Beer

PRODUCE

Fruit
Fish
Herbs
Preserves
Soaps
Nuts
Candies
Meats
Honey
Cider
Dressings
Popcorn
Sauces

Vegetables
Meats
Poultry
Mushrooms
Wines
Baked Goods
Relishes
Pickles
Gourds
Gift Baskets
& Much More!

ENTER THE "BEST OF MISSOURI" GIVEAWAY

Come to the Garden September 15–26 and enter a drawing to win two roundtrip tickets from any Southwest Airlines city to St. Louis for the weekend of October 14–15, 1995. Plus — two nights at the Courtyard by Marriott and dinner for two at a St. Louis restaurant. Sponsored by KMOX, Southwest Airlines, and Courtyard by Marriott.

ENTERTAINMENT

Country & Bluegrass Music

CRAFTS

Hand-Thrown Pottery • Willow Furniture Garden Accessories • Carved Wooden Birds Hand-Spun & Woven Fabrics • Clay Tile • Candles • Wooden Boxes • Dried Flowers & Wreaths • Decorative Ironwork • Angora Yarn Baskets • Missouri Wildflower Jewelry

MBG NATIVE PLANTS

For the first time, native Missouri plants raised at Shaw Arboretum will be available for sale, including perennials, shrubs, and grasses.

SPECIALTY GROWERS

Bowood Farms, Clarksville
Missouri Wildflowers Nursery
Nicholson Bonsai Studio
The Herbin Center

Plus—The Historic Shaw Art Fair October 14 & 15

100 artists exhibit along Flora Place,
10 a.m. to 5 p.m. Saturday,
10 a.m. to 4 p.m. Sunday.

$3 per person, $2 with flyer available at the Garden; children age 14 and under free if accompanied by an adult.

ENTRANCES

Enter at the corner of Alfred & Magnolia; Spink Pavilion on Tower Grove; or the main entrance on Shaw. For more convenient parking arrange a car pool, or take MetroLink and the No. 13 Bi-State bus direct to the Garden!

Conserving Rare Species

AS A PARTICIPATING INSTITUTION of the Center for Plant Conservation (CPC), the Missouri Botanical Garden has agreed to maintain conservation collections of 18 rare plant species from six Midwestern states. Our goal is to conserve a genetically diverse collection of seed, and, in many cases, living plants of each of the species. These could ultimately be used to reintroduce plants to the wild if native populations are destroyed.

In order to have a genetically adequate collection, we must collect seed from several plants in each of the several populations, sometimes over several years for each species. Our "starting point" for sampling is a collection of ten seed from each of 50 plants from at least five populations, but these numbers are adjusted based on several factors. For example, in extremely rare species, we might collect only a few seeds over several years to minimize our impact on the population. Although some rare plants produce copious amounts of seed, germination is sometimes poor; in those cases, we collect large numbers of seed. In species whose populations are very similar genetically, we may gather seed from fewer populations, while in species that have genetically distinct populations we sample as many as possible. We almost always collect seed, but, when few or no seeds are produced, cuttings or divisions of plants are obtained. We only collect entire plants in cases where the population is about to be destroyed. Most of the seed collected is sent to the National Seed Storage Laboratory in Fort Collins, Colorado, under terms of a cooperative agreement between that agency and CPC, but a subset is kept at the Garden so we can learn how to grow the plant to maturity, a necessity for reintroduction projects. For those species that do not make enough seed for us to store a genetically adequate sample, we maintain numerous living plants. Most of these are planted in our private nursery facilities at the Shaw Arboretum.

This June, our two conservation interns, Susana Benedet-Perea and Diane Lill, and I set off on a foray that took us through Indiana, Kentucky, and Tennessee in search of five rare species. Three of the species we collected were members of the genus *Lesquerella, in* the Brassicaceae or mustard family, commonly known as "bladderpods" because of their inflated, bladder-like fruits. *Lesquerella globosa* is known from about 20 sites ranging from southern Indiana to central Tennessee, but many of those populations consist of fewer than ten plants. *Lesquerella globosa* is usually found clinging to bluffs along rivers and roadsides, and some of the populations are threatened by roadside maintenance. We also picked up seed of *Lesquerella perforata* and *Lesquerella stonensis*, which had been collected in early May by a Tennessee Department of Environment and Conservation botanist, Andrea Shea. Both of these bladderpods grow in disturbed flood plain areas and are known from only two or three sites near Nashville. Andrea showed us sites where she had collected seed, but by mid-June both species had died back for the year.

Perhaps the rarest plant in the Garden's collection of CPC species is *Astragalus bibullatus*, or Pyne's ground plum. This tiny perennial in the legume family is only known from two glades in the Nashville area, and we were able to collect seed from both sites on our trip. A third population was recently destroyed when the land was bulldozed for development. Before that happened, Tennessee state botanists transplanted the approximately 100 plants to a safe site. Unfortunately, as happens with many transplantation attempts, only a few of the plants survived. Luckily, seed had been collected from that population in years past. The seed is currently stored at the National Seed Storage Laboratory and is available for reintroduction in the future.

The last species we collected was *Arabis perstellata*, or rock cress, a member of the mustard family. It is known from about 20 sites in Kentucky and Tennessee, often co-occurring with *Lesquerella globosa*. We were not successful in finding mature seed in Kentucky, but were more fortunate in Tennessee. We hiked up a small mountain near Murfreesboro, and finally found the elusive plant on some limestone outcrops near the top. Another state botanist, Milo Pyne, (for whom Pyne's ground plum is named) accompanied us on the search in order to photograph the species. Both Milo and I were happy to add *Arabis perstellata* to our "life lists"; neither of us had seen it alive before that day.

Our trip would not have been possible without the help and cooperation of several state botanists and private landowners, and the general support of individuals and organizations who sponsor the species in the Center for Plant Conservation's National Collection of Endangered Plants (see below). Plant sponsorships support seed collection activities, seed storage, and horticultural research on these rare species for perpetuity. Sixteen of the eighteen species maintained at the Garden have sponsorships. However, the two species added to the collection this year, *Lesquerella globosa* and *Solidago ouachitensis* (Ouachita

continued on page 18

Left: Clifty Falls, Indiana, one of the sites visited on the collecting trip.

Above: Lesquerella stonensis growing in the Edward K. Love Conservation Foundation Nursery at Shaw Arboretum.

by Kayri Havens, Ph.D.
Conservation Coordinator,
MBG Horticulture Division

Annual Volunteer Service Awards

From left: Edna Dependahl, Peter Raven, Bill Betz, Cliff Lecoutour. Not pictured: Sally Erickson, Warren Tabachick.

CLIFF WILLIS

The Weekend Guides (from left): Eileen Hahn, Jeannie Broaders, Lynn Slackman, Jerry Overmann, Sara Johnson, George Thornburgh, Peter Raven, Elaine Bante, and Jacqueline Johnson. Not pictured: Mary Gumerman, Nancy Miner, Jennifer San Cartier.

On June 20, 1995, the Garden hosted Volunteer Evening, the annual party for the hundreds of men and women who give unselfishly of their time, energy, and expertise to help the Garden serve the community. Sixteen individuals and a volunteer group received special awards. In presenting the awards, Dr. Raven told the assembled volunteers, "Your contribution of 80,000 hours a year equates to about 41 full time staff here each day at the Garden." We extend our deepest appreciation to all our volunteers, and to the 1995 recipients of Volunteer Awards:

Extra Service Hours — Bill Betz was honored for giving time above and beyond the normal volunteer commitment. Bill's work involved entering 10,000 records into the research database, including information from the *Flora of Venezuelan Guayana*.

Special Achievement Award — Sally Erickson was recognized for her special projects for the Garden's library, where she works an eight-hour day. Sally's knowledge of botanical literature, languages (including classical Greek), database operation, and book cataloging have been invaluable.

Career Service Award — Edna Dependahl has been a Garden Guide for 26 years, contributing her wonderful spirit of helpfulness, leadership and camaraderie while working in the Climatron and conducting tours for thousands of school age children.

Volunteer Emeritus — Cliff Lecoutour was honored for his outstanding service on the Horticulture Answer Service from 1977 to 1994, when he retired from active volunteer work. Cliff is an expert on fruit and nuts, which he grows in his own orchard.

Commitment Award — Warren Tabachik was honored for his conscientious, dedicated work in the Desert House for the past 13 years. "Tab" worked hard to maintain the collection under less than ideal conditions and helped to determine what to do with the plants when the house was torn down. He is now working with the desert plants in the propagation greenhouses.

Organization Award — The Weekend Guides were honored as a group for their outstanding service providing docent tours on the weekends. Most of these volunteers are employed full time during the week, yet they give their weekends to leading tours and regular training sessions. Without their camaraderie and enthusiasm, children and adults visiting the Garden on Saturday and Sunday would miss out on guided tours and interpretation of the Garden's displays. The members of the Weekend Guides are: **Elaine Bante, Jeannie Broaders, Eileen Hahn, Mary Gumerman, Sara Johnson, Jacquelyn Johnson, Nancy Miner, Jerry Overman, Jennifer San Cartier, Lynn Slackman, and George Thornburgh**.

Special recognition was extended to:

Missy Ramey, for her work as a Master Gardener promoting urban gardening;

Don Ray, for two special computer projects in the herbarium;

Walter Zaenker, for the vouchering project in the Plant Records Department;

Claire DePalma, for preparing plants in the education greenhouse for classroom activities;

Kitty Hoblitzelle, for her contributions as a Master Gardener and work with Gateway to Gardening and the Earthways Home;

Joyce Knobbe, for her contributions in the Kemper Center for Home Gardening since 1991;

Mary Sloan, for her dedication in the herbarium since 1987;

Dolly Darigo, for her contributions in the herbarium;

Meg Griffin, for her work at the Arboretum in the greenhouse and the Whitmire Wildflower Garden;

Kanza Easterly, for commitment in assigning accession numbers and preparing tags in the Plant Records Department.

In addition, **Christina Fuerhoff** was recognized for being named 1994 Master Gardener of the Year.

EXPERIENCE NATURE first hand in wonderful tropical settings, led by members of the Garden's Education staff.

Trinidad and Tobago

March 2 – 10, 1996

At the southernmost end of the Caribbean, this two-island nation offers a wealth of unspoiled tropical habitats from rain forests to savannahs, fresh and salt water swamps, beaches and coral reefs. The tour will be based at the world-renowned Asa Wright Nature Center and Lodge, a 200-acre wildlife sanctuary in the Northern Range mountains on Trinidad and at the charming Blue Waters Inn on Tobago.

Located just six miles off the northeast coast of Venezuela, Trinidad is a small chip off the South American mainland. Consequently, it has a much richer flora and fauna than the other Caribbean Islands, with 400 species of birds, 108 mammals, and 617 species of butterflies. The Northern Range is an eastward spur of the Andes mountains and rises to just over 3,000 feet, most of which is covered in tropical rain forest.

Tobago forms the final link in a chain of mountain ranges extending from Venezuela and is on the very edge of the South American continental shelf. Tobago's climate more closely resembles that of the Lesser Antilles than that of its sister island of Trinidad, being drier and windier. It is an ideal spot for snorkeling and studying marine ecology.

Enjoy day and night explorations of the tropical rain forest with its wealth of wildlife. Travel by boat into the mangroves of the Caroni Marsh to observe the spectacular evening return of the scarlet ibis to their roosts. Snorkel in the blue Caribbean waters, and view the reef from a glass bottom boat. To register for this exciting tour, please call the Education Division, (314) 577-9506.

Darwin's Puzzle: The Galapagos Islands

April 10 – 20, 1996

Named by the Spanish for the large tortoises found here, these islands have intrigued travellers ever since Charles Darwin made them famous.

The group will explore colonial Quito on the coast of Ecuador, the oldest capital city in South America, then spend seven days exploring the Galapagos aboard the deluxe yacht *Flamingo*. Each day the group will visit a different island, accompanied by certified park naturalists.

Island hopping bird watchers will see the famed Darwin finches, blue footed, red, and masked boobies, and colonies of great frigatebirds and flamingos. At the Charles Darwin Research Station, tour members will learn about research and conservation projects and hike the highlands to see tortoises.

Snorkeling and swimming near Tower and Espanola will bring the intrepid visitor close to sea lions, marine iguanas, and colorful corals. Sea turtles and rays may be spotted near Bartolome. Hikes inland will feature the stark variations in life zones created by the steep volcanic cones that make up the Galapagos archipelago.

The tour returns to Quito on April 19. A four-day extension to the Jatun Sacha Biological Station in the interior rain forest or a one-day trip to the Otavala Indian Market may be added to the trip before the return to Miami.

For more information or to register for the trip to the Galapagos, please call the Education Division at (314) 577-9506 or Sharon Hamel at Aventure Travel, (314) 863-7474.

Above: A Garden tour group stops along the Lalaja Trace in Trinidad's Northern Range. Left: View of the bay at the Blue Water Inn on Tobago.

CONSERVING RARE SPECIES — continued from page 16

Mountain goldenrod) have not yet been sponsored. For more information on sponsoring a plant in the National Collection, please call the Center for Plant Conservation at (314) 577-9540.

CPC Sponsors

Many thanks go to the major sponsors of the rare CPC species in the Garden's collection:

Amorpha ouachitensis
Mrs. John E. Mackey
Mrs. Courtney Obata
Mr. and Mrs. Francis Stokes
Edward K. Love Conservation Foundation
Apios priceana
Zone IX Garden Clubs of America
Arabis perstellata
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Mr. and Mrs. Fred Kummer
Arenaria cumberlandensis
Mrs. George K. Hoblitzelle
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Edward K. Love Conservation Foundation
Astragalus bibullatus
Tennessee Department of Environment and Conservation
Boltonia decurrens
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Mr. and Mrs. Fred Kummer
R. J. Reynolds Tobacco Company
Trifolium stoloniferum
Mr. and Mrs. G. Rodney Miller
Mr. and Mrs. William Pettit, Jr. ■

GARDEN GATE
SHOP

Japanese Festival

September 2, 3, and 4
9 a.m. to 8 p.m.

Bamboo gifts and books, bonsai, Japanese fans, tea sets, chrysanthemums, wind bells, and more. Come taste the new "Republic of Tea" products, and meet Nancy Sinclair, the St. Louis artist who designed the official Japanese Festival T-shirts and mugs. Preview the new "Audubon Lifelike Birds" collection.

Exclusive "Fruits and Passion" Grooming Products

During the Japanese Festival the Shop will introduce the exclusive personal products line "Fruits and Passion," featuring natural fragrances imported from Grasse, the famed fragrance region of France. The entire line of vegetable oils and fruit extracts is environmentally friendly, phosphate-free and biodegradable, and includes glycerin soaps, bath gels, lip balms, drawer liners, and more for both men and women. Come in for free samples and information.

Fall Bulb Sale

Members' Pre-Sale:
Thursday and Friday,
Sept.ember 14–15
9 a.m. to 6 p.m.
Sale open to the public:
Saturday and Sunday,
September 16–17
9 a.m. to 5 p.m.

Featuring bulbs for naturalizing, bulbs for indoor forcing, new varieties, plus beautiful hardy mums in lots of colors. The sale will be held in the Shop and the Orthwein Floral Display Hall, and members receive a 20% discount on all plants and gifts, all four days. An expert on bulbs from Holland will be available Thursday and Friday to answer questions.

"Best of Missouri" Market

October 14-15, 1995
9 a.m. to 5 p.m.

The Shop will have a booth in the outdoor tent featuring Missouri-made gifts, honey, birdhouses, and more, plus a wonderful display in the Shop itself featuring books and cookbooks by Missouri writers.

Meet Missouri Artists

During the "Best of Missouri" Market, the work of four local artists will be on display and available for purchase. The artists will be demonstrating their work in the Shop both days:

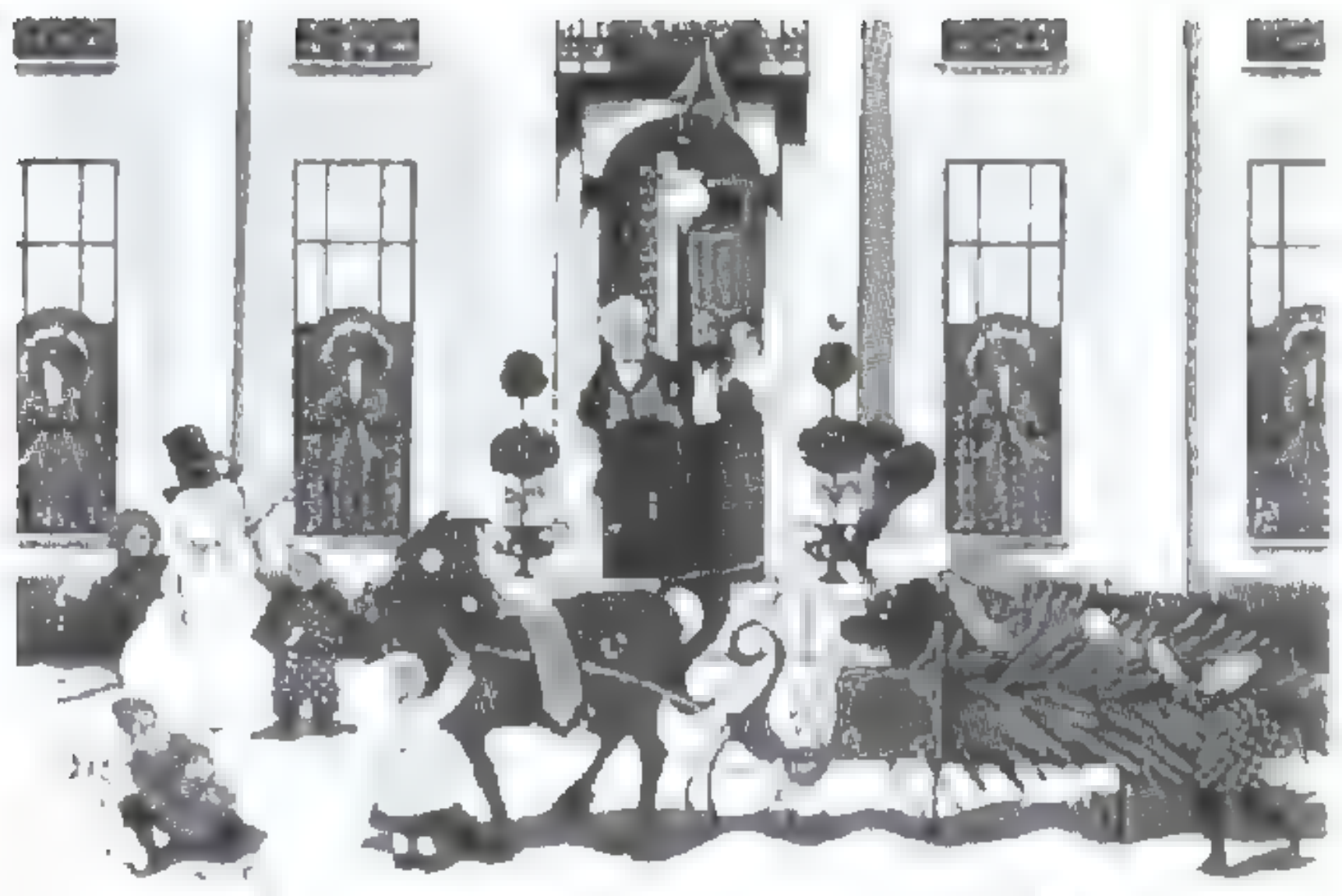
Betty Shaw: Framed paper art
Margaret Toth and Jane Corrigan: Dried floral arrangements
Antje Kay Sutton: Wildflower art
Kathleen Starbird Greenwell: "Taliswoman" jewelry

1996 MBG Calendars

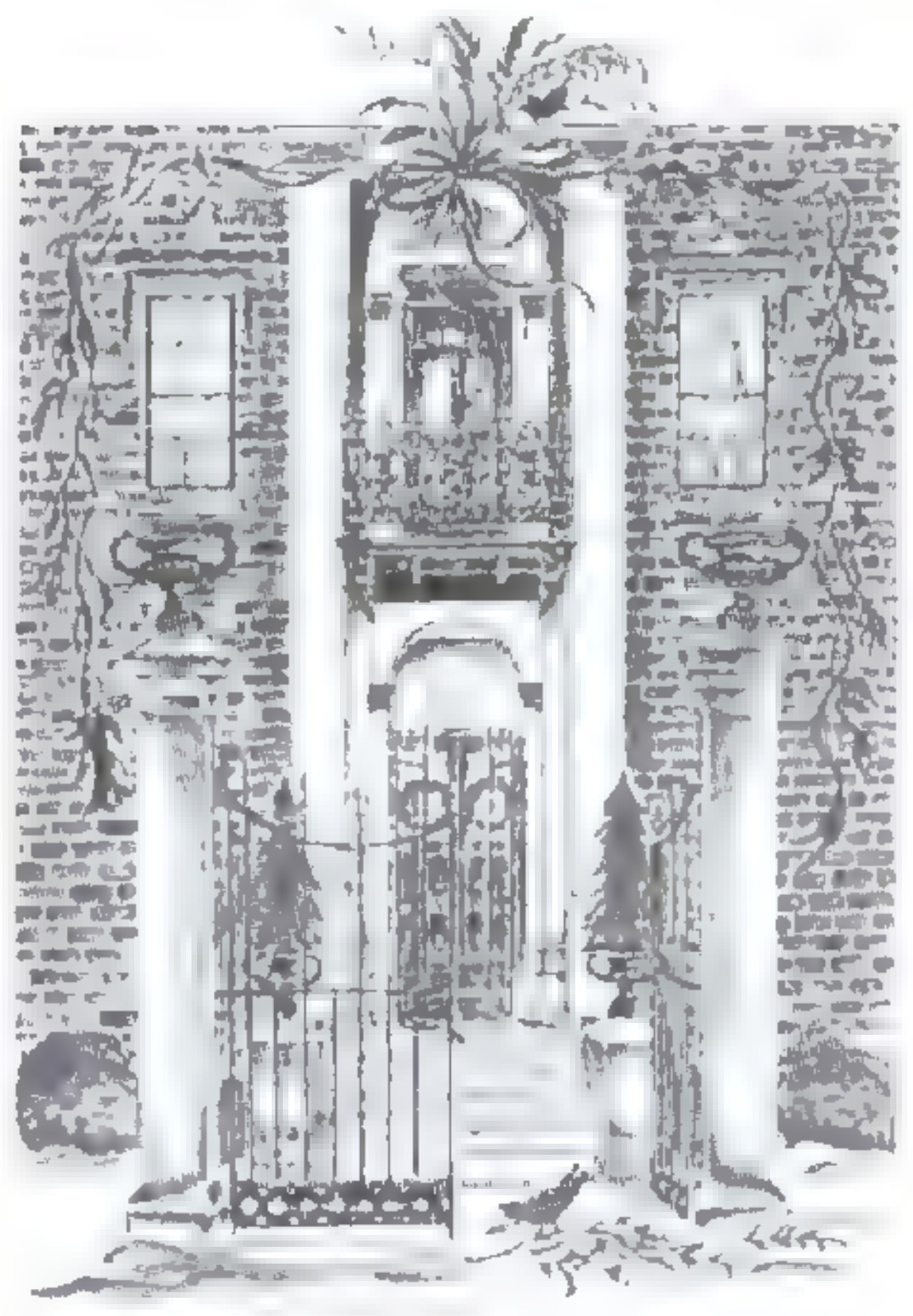
1996
Missouri Botanical Garden Calendar

1996 MBG Calendar

The Garden's spectacular calendar for 1996 has arrived and is available in the Shop. Featuring Jack Jennings' beautiful color photographs of the Garden in all seasons, the 16 x 12 calendar also includes a full-color poster on the Poaceae, or grass, family. The MBG Calendar is $10.95. To order 1996 Garden Calendars, including gift orders, please call the Garden Gate Shop Monday through Friday, 9 a.m. to 5 p.m., at (314) 577-9449.



1995 card by Ann Thompson



1995 card by Ruth Boston Wayne

1995 MBG Holiday Cards

THIS YEAR the Shop is offering two exclusive cards for the holidays. Meet the local artists, Ann Thompson and Ruth Boston Wayne, in the Shop both days during the "Best of Missouri" Market. Boxes of 12 cards and 12 envelopes are priced at $13 for the Thompson card, $16.50 for Wayne's design.

15% Discount for Mail Orders

Members who order their holiday cards by mail will receive an extra five percent discount, plus shipping. Watch for your brochure, or call the Garden Gate Shop Monday through Friday, 9 a.m. to 5 p.m., at (314) 577-9449.

A SPECIAL OPPORTUNITY FOR GARDEN MEMBERS

Banks' Florilegium Prints

HAVE YOU ALWAYS WANTED to own a limited first edition botanical print? Now members of the Missouri Botanical Garden have a special opportunity to purchase magnificent color prints from *Banks' Florilegium*, the renowned collection of 743 copperplate engravings created between 1771 and 1784. Individual prints from this famous series may now be purchased by Garden members at a significant discount, with a portion of the proceeds benefitting the Garden.

Banks' Florilegium depicts many of the new species of plants collected on Captain Cook's first voyage around the world in *H.M.S. Endeavor*, 1768-1771. The specimens were gathered and classified by Sir Joseph Banks, founder of Kew Gardens, and Daniel Solander, protegé of Carl Linnaeus. The exquisitely beautiful engravings were made from drawings of the specimens by Sydney Parkinson, who died before *Endeavor* returned to Britain. Despite 13 years of work and the investment of over £1 million, Banks never saw his engravings printed in color. The plates were preserved in the British Museum (Natural History) for 200 years before they were at last printed in color beginning in 1980, as a joint venture by the museum and Alecto Historical Editions, London. The project took nine years to complete. Only 116 sets of prints were produced, printed by hand using 18th century techniques. Each folio-size print required up to 16 different colors, with additional hand-coloring.

The individual prints offered for sale are from three sets produced for promotional purposes. All are in perfect condition and are printed on acid-free paper. Prices start at $275 before discount, and a catalog showing all the plates in full color is available in the Garden library. Those interested in the *Banks' Florilegium* prints may call Dr. Mick Richardson of the Garden's Research Division at (314) 577-5176.

Barcodes Revolutionize Library and Herbarium Operations

BARCODES, the same lined labels used to scan your purchases at the supermarket, are the latest feature of computer technology to improve services at the Garden. Major projects are currently underway to place barcodes on all items in the Garden's herbarium and library collections.

The self-adhesive barcodes are made of polyester laminated with mylar and contain a coded number that can be read by a scanner connected to a computer. The codes make it possible to track individual items with precision and to locate information about them almost instantaneously.

In the Herbarium

The barcodes will link each herbarium specimen to the TROPICOS database, which will include the specimen record, accession number, and other information for each item in the collection. To retrieve or add information, one simply passes the barcode under a scanner and the specimen record appears on a computer screen.

Barcodes improve efficiency and save an enormous amount of time. For example, when specimens are sent on loan to other institutions, their barcodes can be scanned, allowing herbarium staff to know immediately which specimens have been sent and where, without laborious manual counting and recording procedures. This is especially important for responding to requests for information or specimens.

The barcoding project is supported in part by the National Science Foundation.

In the Library

In early 1995 the Garden library purchased the Horizon computer system from Ameritech Library Services as the first step in computerizing all of its collections and procedures, supported by grants from the Andrew W. Mellon Foundation and the Spencer T. and Ann W. Olin Foundation. In transfering all library procedures to Horizon, each volume in the collections will be barcoded.

Some barcodes already have been connected to the bibliographic data in the library's database. They were generated automatically when the library's computerized records were converted to the Horizon system. Work is underway to place these labels into their volumes and to create barcodes for rest of the collection, including journals and series. In addition to automating book check-outs and tracking, the barcodes will simplify inventory procedures.

The library's new Horizon computer system makes the library more efficient and easier to use. For example, the public access catalog, formerly the card catalog, allows patrons to find books on a computer screen by looking up many more criteria than just author, subject, and title. For now, members and visitors can use the public access catalog only in the library, but eventually the public access catalog will be available on the Internet. Other library services being incorporated into Horizon include acquisitions, circulation, cataloging, serials, and administration.

Volunteers Needed for Barcoding Project

Volunteers are urgently needed for the library's barcoding project. If you are at least fourteen years old and can give one hour or more a week, your services will be very much appreciated. In addition to the satisfaction of doing an important job, the staff promise attendance prizes and snacks! If you are interested, please call Jeanne McGilligan at 577-5187.

Try Out FirstSearch® for Free!

The Garden library is offering members and staff the opportunity to try the FirstSearch reference service free of charge in September and October. If you have ever longed to compile information on a topic but haven't had the time, FirstSearch offers access to over 31 million records from 18,000 libraries worldwide.

The service will rapidly compile comprehensive lists of books, journal articles, and other sources of information on a wide variety of topics including botany, horticulture, gardening, education, the arts, and more. The cornerstone of FirstSearch is WorldCat™, the database of the Online Computer Library Center, Inc.

For more information on using FirstSearch, please call Connie Wolf, the Garden librarian, at (314) 577-5156.

Computerizing the Garden

JUST ONE OF THE BENEFITS of the Partnership Campaign has been improving computer capabilities throughout the Garden. In the past 18 months we have been able to install more extensive networks, upgrade software, and add new workstations.

Like many organizations, the Garden began to add individual desktop computers for staff several years ago, but there was little centralization. Since the Information Services Division was established last year, we have been working to improve efficiency by helping all staff computers work together through networks and standardized software. It has been a challenge to overcome some of the problems, especially with offices located in so many different buildings.

Our first improvement was a centralized inventory and accounting application for the Garden Gate Shop. This involved placing barcodes on all merchandise and creating a database with pricing and quantity information. Now each item can be quickly identified with a scanner, making inventory and cost control much more efficient. The Shop was up and running with their new system as of the first of January, 1995.

With 31,000 members, the Garden's membership department manages an enormous amount of information. In September 1994, all membership records were transferred from an outdated Wang system to a new DOS-based network of personal desktop computers. It took a lot of time to make sure all records were transferred accurately, and staff needed several days of training on the new system. Setting up the new membership computer network was made more difficult by the offices, which are located on three different floors of the Administration Building.

In the first quarter of 1995, we were hard at work in the John S. Lehmann Building, setting up the network to accommodate the Library's new Horizon system (see story at left). In addition, a backbone network was created to allow computers in the Administration Building to "talk" to the computers in the Ridgway Center and the Lehmann Building, and vice versa.

The network in the Ridgway Center is being upgraded to transmit data five times faster than before, to accommodate newer software programs. We are fortunate to be one of the few institutions in the metropolitan area to have such extensive capabilities.

The upgraded computer network at the Garden has enabled us to begin implementing Garden-wide Electronic Mail and access to the Internet for all departments. Data processing for scheduling events, accounting, and personnel are in various stages of transition, poised to take advantage of up-to-date software programs.

All of these improvements are similar to those needed in any business today. It is a challenge to pull all of the Garden's diverse activities and locations into one cohesive system, but the effort will increase the efficiency and productivity of the Garden's staff.

— Keith Heerlein, director of the Information Services Division

Summer Youth Eco-Corps

LAST SUMMER the Thompson Center, an interfaith retreat and conference center on serene wooded grounds in St. Louis County, was transformed into an outdoor classroom. The Garden, in collaboration with the Thompson Center and AmeriCorps, sponsored the Summer Youth Eco-Corps at the Center, an environmental program for teenagers 11 to 15.

The participants were recruited from all over the metropolitan area, from a variety of social and economic backgrounds. Twelve boys and twelve girls each had a weeklong residential program in environmental field education, community service, and leadership training.

Led by Celeste Prussia and Lydia Toth of the Garden's Education Division staff, the students learned to solve problems together by working on a community service project, helping to restore a woodland trail and pond area. Before doing any restoration work, the students conducted an aquatic and terrestrial inventory of the area to determine what plants and animals were there. Shouts of excitement and surprise echoed through the woods as daddy-longlegs crawled over shoes and bullfrogs leaped just out reach.

Eco-Corps participants made new friends at the Thompson Center this summer, including this box turtle.

The restoration made a lot of progress and the teens were justifiably proud of their work. Afternoon projects included building bluebird boxes, making recycled paper, and activities with a map and compass. Students were challenged to design a community next to a pond and then analyze the effect of human population on the aquatic ecosystem.

One of the highlights of the program was exploring the nighttime natural world. Arboretum education staff Miriam Krone and Jan Oberkramer led a night hike, and James Trager, Arboretum naturalist and a trained entomologist, led a nighttime exploration using blacklights to attract a variety of insects.

Ginger Trueblood, executive director of the Thompson Center, said, "The results exceeded my expectations. The kids had a wonderful experience and most of them wanted to come back. We are very happy and pleased."Larry DeBuhr, director of education at the Garden, said, "The unique resources brought to this experience by each of the organizations contributed to the overall success of this very exciting program."

— Lydia Toth, Instructional Coordinator, Shaw Arboretum

YOU & THE ENVIRONMENT

This past June a parasite took up residence in the Climatron, but it was definitely welcome. *Metaphycus alberti*, a tiny, non-stinging wasp that controls soft brown scale, was introduced by conservatory manager Dr. John MacDougal and horticulturist Deborah Lalumondier as part of their ongoing efforts to use biological controls and integrated pest management.

As reported in previous issues of the *Bulletin*, integrated pest management (IPM) encompasses many techniques, including introducing beneficial insects to control populations of insects that are destructive to plants. Because the Garden's horticulturists avoid using highly toxic pesticides, beneficial insects have been effective in many areas in the conservatories. In the Climatron, for example, there are currently about 15 species of tiny wasps, mites, and other beneficial insects that help to control various plant pests.

MIKE ROSE TEXAS A & M UNIVERSITY

Metaphycus alberti ***on a patch of brown scale. The tiny wasp is non-stinging.***

Insects that function as biological controls come in two types: predators and parasites. Predators, such as ladybugs or lacewings, attack damaging insects; they are most effective when the pest population is increasing. Parasites, on the other hand, live in balance with the host organisms and maintain an even level of control. The parasitic wasps introduced in June lay their eggs in the soft brown scale that attacks plant leaves. The wasp larvae eat the scale as the insect matures.

The *Metaphycus alberti* wasps are "experimental" and not yet commercially available. A dozen botanical institutions and conservatories, including the Garden, formed a consortium to purchase the wasps, which were produced by the Department of Entomology at Texas A & M University. The program to produce the insects is administered by biologists Steve Stauffer and Dr. Mike Rose, director.

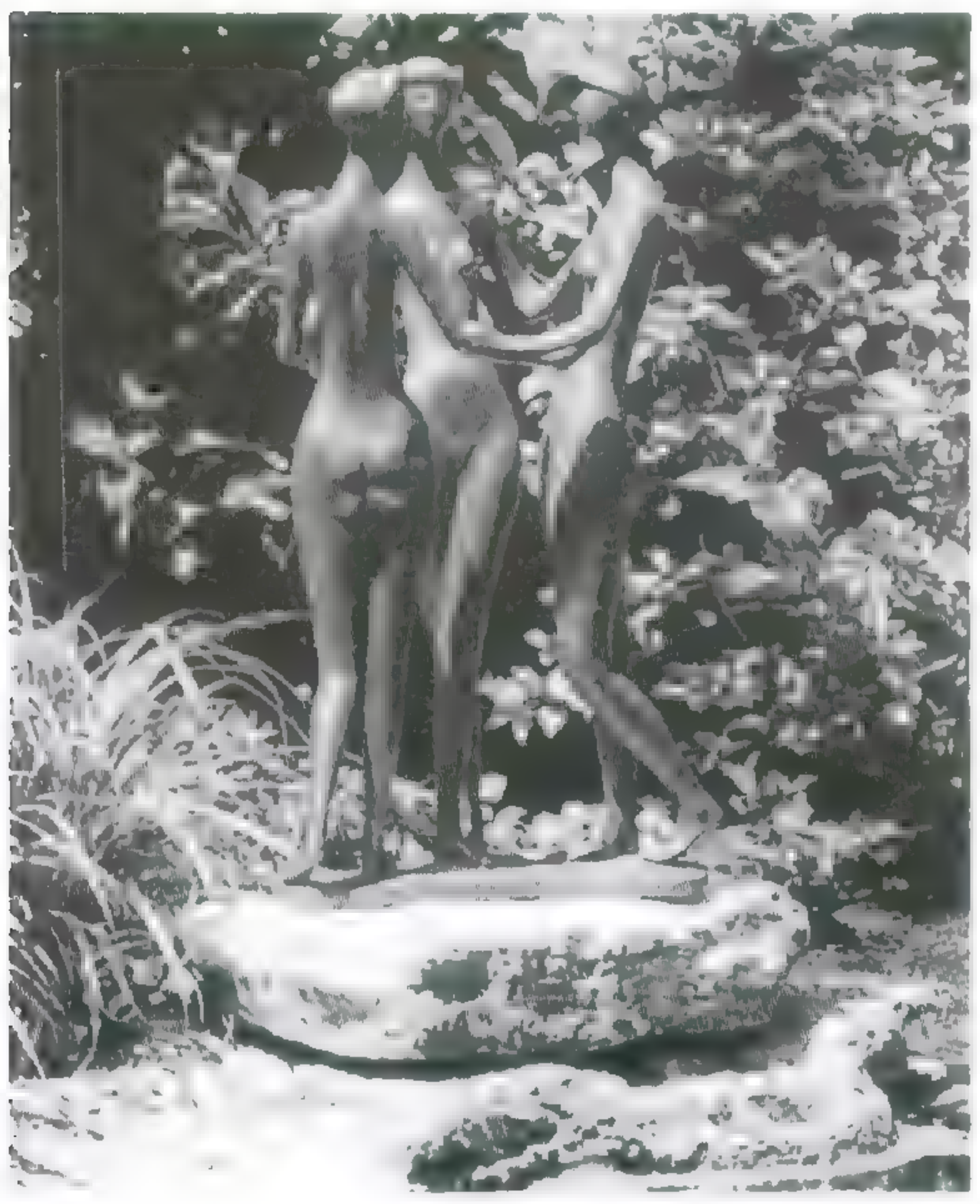
MacDougal said, "We are pleased to be able to get these parasites that are otherwise unavailable commercially because of low demand. Integrated pest management is simple, but as new pests appear we need new tools to control them. I hope that what we learn here helps to increase demand for effective biological controls."

NEW MICROSCOPE FOR GRADUATE STUDENTS — On July 12, Olympus America Inc., in conjunction with Hitschfel Instruments, Inc., presented a BX-40 microscope for use in the new research building. The microscope is a state-of-the-art piece of equipment that will be used by graduate students for studies of plant chromosomes and cell studies. Shown accepting the new microscope are (from left): Germán Carnevali, Dorothy Bay, and Neil Snow, MBG graduate students; Bill Petersen and Joseph Roccasalva of Olympus America Inc.; Günther Hitschfel of Hitchfel Instruments, Inc.; and Dr. P. Mick Richardson, manager of graduate studies at MBG.

CLIFF WILLIS

Union Pacific Foundation Supports Garden Research

On June 8, Dwight Miller, general solicitor for Union Pacific Railroad Company (above, right), presented a check for $25,000 to Ronald Oyer, the Garden's director of development. The first installment of a two-year, $50,000 grant was provided by the Union Pacific Foundation to support the *Flora of North America* and *Flora Mesoamericana*, major botanical research projects based at the Garden. The award was made on behalf of Union Pacific Corporation and its operating companies, Union Pacific Railroad Company, Union Pacific Resources Company, and Union Pacific Technologies.



Last spring Mrs. Thomas S. Hall gave the lovely sculpture "The Three Graces" to the Garden in memory of her husband. Dr. Hall, a Trustee of the Garden from 1982 until his death in 1990, was a noted professor of biology on the faculty of Washington University for 30 years. He was widely respected as an academic leader and a fine teacher who was devoted to the study of ecology. The group of three bronze figures by sculptor Gerhard Marcks has been installed permanently beside the pool in the English Woodland Garden.

Behind the Scenes

Delle Willett Joins Staff for Public Relations

Delle Willett joined the Garden public relations staff in July. With over 25 years of experience in marketing communications, Delle will be responsible for media relations, advertising, and press releases for the Garden.

For the past three years Delle was director of Community Club Awards for the Cable Advertising Network of Greater St. Louis, coordinating a comprehensive community relations and sales promotion program. Before moving to St. Louis, she ran her own advertising and public relations agency in San Diego, California for 15 years. The firm was recognized as one of the top 25 agencies in San Diego. Before founding her agency, Delle worked in magazine and book publishing in California and did marketing work for Sea World of San Diego. She is a graduate of the University of San Diego.

"We are fortunate to have someone of Delle's expertise on the staff of the Garden," said Dr. Larry DeBuhr, director of education. "Her experience and enthusiasm will provide a big boost in making the public aware of all the things the Garden is doing."

Delle lives in Chesterfield with her husband and their two children.

On the Fourth of July weekend, Peter Raven led the parade through downtown St. Louis as Grand Marshall of Fair St. Louis.

Legendary Environmentalist David Brower Visits the Garden

David Brower, the first executive director of the Sierra Club and founder of Friends of the Earth and the League of Conservation Voters, presented a lecture at the Garden on June 15. Afterwards, Mr. Brower visited with members of the audience and signed copies of his newest book, *Let the Mountains Talk, Let the Rivers Run: A Call to Those Who Would Save the Earth*, available in the Garden Gate Shop. According to 1990 Nobel Laureate Henry W. Kendall, "David Brower is one of the rare few in our nation who has a deep and discerning view of the ills that our society has visited on the environment." Brower has been at the forefront of conservation efforts since 1938 and has twice been nominated for the Nobel Peace Prize.

CLIFF WILLIS

David Brower (center) greeted members of the audience and signed copies of his books outside the Garden Gate Shop.

Erna Eisendrath Award

William A. Davit, prairie restoration specialist at the Litzsinger Road Ecology Center, received the Erna Eisendrath Education Award from the Missouri Native Plant Society on June 28 in recognition of his outstanding contributions to educating Missourians about native plants. Bill has been on the Garden's staff for 26 years, over 20 of them spent at Shaw Arboretum as a naturalist, a specialist in prairie ecology and restoration, and a gifted teacher. He is a board member of the Missouri Prairie Foundation.

The award is named in honor of Erna Eisendrath, who was associated with the Garden from 1952 until her death in 1985. Ms. Eisendrath is perhaps best remembered for her book *Missouri Wildflowers of the St. Louis Area*, published by the Garden in 1979.

TRIBUTES
MAY – JUNE 1995

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Mrs. Bryant Thompson
Mr. Charles R. Abele
Ms. Rebecca Jackson
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VOLUME LXXXIII
NUMBER SIX

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS AND THEIR ENVIRONMENT, IN ORDER TO PRESERVE AND ENRICH LIFE."

AS THIS ISSUE GOES TO PRESS, we have received word that President Clinton has signed the new Agriculture Appropriations Bill, which includes $3.995 million for the Garden's new research building, bringing the total raised for our capital campaign to $25.7 million. We extend our thanks to Senator Bond, Representatives Gephardt and Durbin, and to everyone who helped to make this wonderful achievement possible. Please see the next issue of the *Bulletin* for full details on this important step forward for the Garden and for St. Louis.

During 1995 we have seen many extraordinary and exciting changes at the Garden, as some of the goals of the Partnership Campaign have been realized. Our expansion is driven by demands for more services and programs; these new services, in turn, increase the need for funds to support their operation. That is why our Year-End Appeal is so vitally important. Soon each of you will receive a letter or telephone call asking you to make an additional gift to the Garden for 1995, over and above your membership dues. The Year-End Appeal makes it possible to continue to deliver the quality and quantity of service people expect from the Garden. I hope you will be able to respond generously and help to maintain the Garden we have all worked so hard to create.

On September 30, we celebrated the new Margaret Blanke Grigg Chinese Garden with a spectacular party. Everyone who attended had a splendid time and joined us in honoring our dear friend and benefactor Peg Oberheide, whose generous gift in memory of her parents made it possible for us to create the only authentic Chinese garden in the United States. And congratulations to everyone who helped to make our fourth annual "Best of Missouri" Market in October another tremendous success. Nearly 15,000 people attended this year as the market expanded to two days. (See page 14.)

The exciting exhibits in the Brookings Interpretive Center are the newest addition to the Garden (see pages 4–5). Both adults and children will be fascinated and entertained by these beautiful displays as they learn more about plants and why they are so important to our planet. Please join us for the special members' preview on November 11, and plan to visit the Brookings Center often.

Be sure to see the Calendar of Events on page 12 for details on our spectacular Holiday Flower Show, "Carols in the Garden", and all of the delightful holiday festivities coming up! We look forward to seeing you here.

— Peter H. Raven, Director

TIM PARKER

SIR DAVID ATTENBOROUGH VISITS THE GARDEN — On September 19, 1995, writer/filmmaker Sir David Attenborough presented a special preview of his bestselling new book, *The Private Life of Plants*, in Shoenberg Auditorium. After his lecture, Attenborough signed copies of his books for members of the audience, above. *The Private Life of Plants* is based on Attenborough's new six-part television series, which premiered on TBS in October. *The Private Life of Plants* is available in the Garden Gate Shop.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this *Bulletin* and mail to:

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On the Cover

The 1859 Museum Building is a reminder of the Garden's heritage of botanical research

Photo by King Schoenfeld

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $45 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118

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THE PARTNERSHIP CAMPAIGN

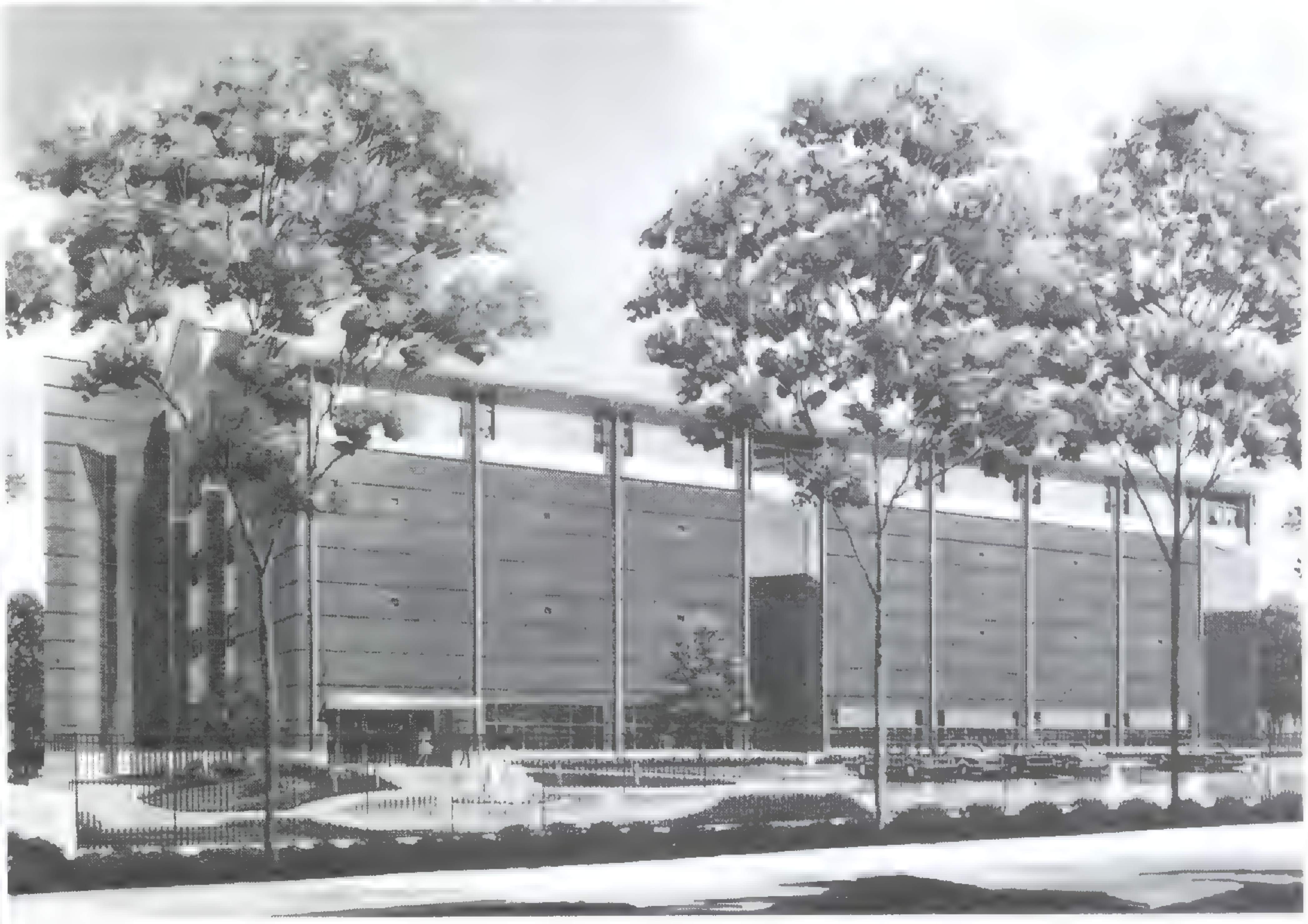
Highlights of 1995

▲ *Piper Observatory Is "Capped Off" — The beautiful copper-clad dome of the observatory was lifted into place on October 9. The tower's broad observation deck will give visitors a wonderful view of the maze and the surrounding grounds.* ▶

◀ *Construction was finished in the Ruth Palmer Blanke Boxwood Garden, and planting began on the parterre. The entrance features the exquisite bronze "cattails" fountain, far left.*

PHOTOS BY CLIFF WILLIS

▼ *The Edgar Anderson Boxwood Memorial was dedicated on October 4, 1995, with a ceremony attended by members and friends of the late Dr. Anderson, a former director of the Garden and noted expert on Buxus. Three founding members of the Boxwood Society of the Midwest attended the ceremony (seated, from left): Jane Penhale, Mary Holekamp, and Mary Gamble. Dr. Charles B. Heiser of Indiana University, a colleague of Anderson's, addressed the gathering.*



▲ *Planning for the Garden's new research building, to be built on the southwest corner of Shaw and Vandeventer, is in its final stages. A model of environmentally sound "green" architecture, the new facility will have many innovative features. Watch for a series of articles beginning in the January/February 1996 Bulletin.*

Above: The exhibits feature video screens, computerized touch-screens, display cases, lighted panels, and a living ant colony. Right: Lighted panels overhead and real liana vines give visitors the sense of being in the rain forest. More features and displays will be added soon, and there will always be new things to see.

Members' Preview November 11 • Grand Opening November 12

A Jewel in the Climatron

MORE than five years in the making, the new exhibits in the Brookings Interpretive Center in the Climatron complex will officially debut on November 11 with a special preview for Garden members. Come and see these wonderful, colorful displays that fill 4,300 square feet of museum space with a vivid look at the central role of plants in the Earth's ecosystem.

The new permanent exhibit has been designed to help visitors understand why plants are so central to the balance of life on Earth. Whether you walk through for a quick tour or stay to look more closely, you will learn more about biodiversity, why it is important, and what you can do to help preserve it.

"Paradise Is Being Lost"

Linking the living exhibits in the Climatron with the Shoenberg Temperate House and the site of the future Desert House, the Brookings Center literally spans the range of ecosystems featured in its displays. Visitors entering the Brookings Center are greeted by a diorama of life-size figures, "Paradise Is Being Lost," that dramatizes the global crisis of deforestation. Originally installed in 1990, the diorama has been enhanced with a row of "environmental conversations" among an ecologist, a forest dweller, a land developer, and a farmer. Visitors can manipulate panels to see "point – counterpoint" arguments on many sides of environmental issues.

You will enter the exhibit space to the left, past a "waterfall" of sound and light that highlights the role of water in global ecosystems. Beyond are 40 colorful exhibits, including touch-screen computer kiosks, video monitors, displays featuring living animals and plants, and lighted, interactive panels. The exhibits are arranged into seven areas:

Global Rainfall

Just past the waterfall stand three tall columns of water. The one for deserts is nearly empty; the temperate zone column is half full; the column for rain forests reaches toward the ceiling. These giant "rain gauges" demonstrate the dramatic differences in annual rainfall in different regions, which contributes to their uniquely different life forms

Deserts — "More than Sand"

A biome is a large regional ecosystem, or "life zone," with a distinct type of climate. Deserts are the driest biomes on earth; "No Sweat" introduces plants and animals that have adapted to survive there. "Cool Nights in Warm Deserts" highlights extreme variations of temperature with touch panels

Tropical Rain Forests — "A Biodiversity Bonanza"

Moving from the driest to the wettest biomes on Earth, look up; lighted panels create the impression of the tropical forest canopy overhead, with clusters of liana vines twisting up to the ceiling. Take the touch-screen "canopy climb" to investigate life at different levels in the forest. Hundreds of colorful photographs, most taken by Garden researchers, give some idea of the incredible diversity of living things found in tropical regions.

Many plants use poisonous chemicals or animal partners to protect themselves. Watch a lively colony of reddish-brown ants as they live symbiotically with bullhorn acacias; the plants provide shelter and food, and the ants sting any animal that attempts to eat the acacia leaves. See how bromeliads help support birds and insects as "Ponds in the Sky." Nearby, learn about pollination systems with "The Bats and the Bees" and seed dispersal with "Free Lunch?"

Above: Curtis Riganti turns the dial to light up the "Global Views" display panel, while his father John and brother Carl look on. Top, left: "Every Minute Counts" displays lighted readouts at the touch of a button. Left: Get a "critter's-eye-view" of the forest floor in temperate and tropical forests.

Global Views

What happens to sunlight that strikes the Earth? Only *two one-hundredths of one percent* is used by plants for photosynthesis, yet that supplies food for all the animals on Earth. Turn the dials on this lighted wall to see how the energy from sunlight powers wind, rain, and the water cycle. Nearby, a large terrarium filled with fish, snails, and water plants demonstrates "natural recycling" using solar energy, water, and oxygen. Explore "Biomes of the World" on a touch-screen computer, and watch satellite pictures of global weather patterns on a giant video screen.

Temperate Regions — "Land of Seasons"

Six types of biomes are common in temperate regions of the world: prairie grasslands, dry chaparral, northern taiga, deciduous forests, warm evergreen forests, and temperate rain forests. A large video monitor shows typical seasonal changes in a specific forest area in Vermont. Colorful photographs by Garden researchers and other scientists highlight the plants and animals of each temperate region. Kiosks display contrasting cross sections of tropical and temperate forest floors, including animals and organisms that live above and below the soil.

Causes and Consequences

On a lighted wall panel, "Every Minute Counts" displays digital readouts of the acres of tropical rain forests remaining in the world or numbers or species that have become extinct in the past ten years; the totals change while you watch. Another running total shows how rapidly human population is rising; it is the major cause of the continuing destruction of tropical forests. "Tropical versus Temperate" highlights the difference in diversity of tree species between two actual plots of forest, one in Peru and the other in Missouri, using data compiled by the Garden's late curator, Dr. Alwyn Gentry.

Solutions

An exhibit of a researcher's office features actual herbarium samples, plant presses, and two multimedia displays: "Conversations: Who Are Botanists, and What Do They Do?" and "Whodunnit: Why Name Plants?" Discover why the work of Garden scientists is important to the future of our planet, and learn what you can do to deal with environmental issues. "Make a Difference", a nearby multimedia exhibit, includes a "Kids' Quiz" and provides print-outs of recycling centers for the area where you live, arranged by zip code.

THE BROOKINGS INTERPRETIVE CENTER was built with support from the relatives of the late Robert Somers Brookings, the prominent 19th century St. Louis businessman and philanthropist who created the Brookings Institution and was instrumental in the development of Washington University and its School of Medicine. The gallery was built as part of the renovation of the Climatron complex in 1989-90. Private support has been part of the Campaign for the Garden, 1986-1990, and the current Partnership Campaign.

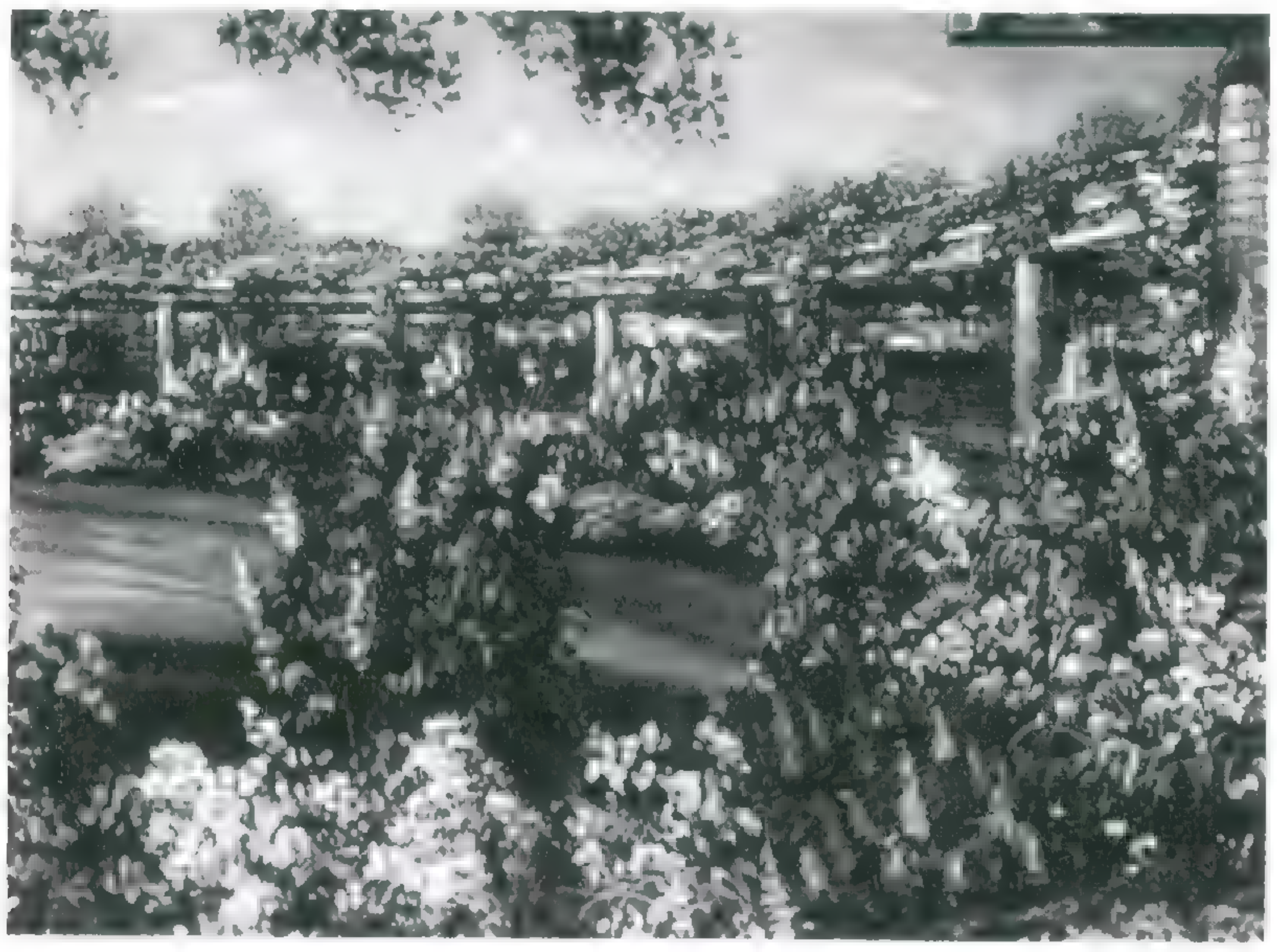
Additional major support for the new educational exhibits came from the National Science Foundation. The displays were planned by Garden staff from the horticulture, education, and research divisions, working in close collaboration with Krent/Paffett Associates of Boston. The multi-media, computerized, and video displays are being developed by Hands-On Interactive Publishing Inc. of St. Louis. All of the colorful exhibits were fabricated by Design Craftsmen, Inc., of Midland, Michigan

THE PARTNERSHIP CAMPAIGN

Enterprise Rent-A-Car Gives Flower Borders Garden

THE WIDE CENTRAL LAWN of the new demonstration gardens will be encircled with a colorful arc of brilliant blooms, through the generosity of Enterprise Rent-A-Car Company, the Enterprise Rent-A-Car Foundation, and members of the Jack C. Taylor family. The beautiful new display is one of 23 new outdoor displays at the William T. Kemper Center for Home Gardening.

The Flower Borders will provide a kaleidescope of colors, shapes, and textures throughout the seasons, filled with new ideas to inspire home gardeners. The beds will feature blooming shrubs, annuals, and perennials in exciting color combinations or massed in plantings of a single dramatic color. Some beds will be designed as a cutting garden, with plants suitable for fresh or dried arrangements. Other groupings within the borders will be designed for low-maintenance, fragrance, or special seasonal display.



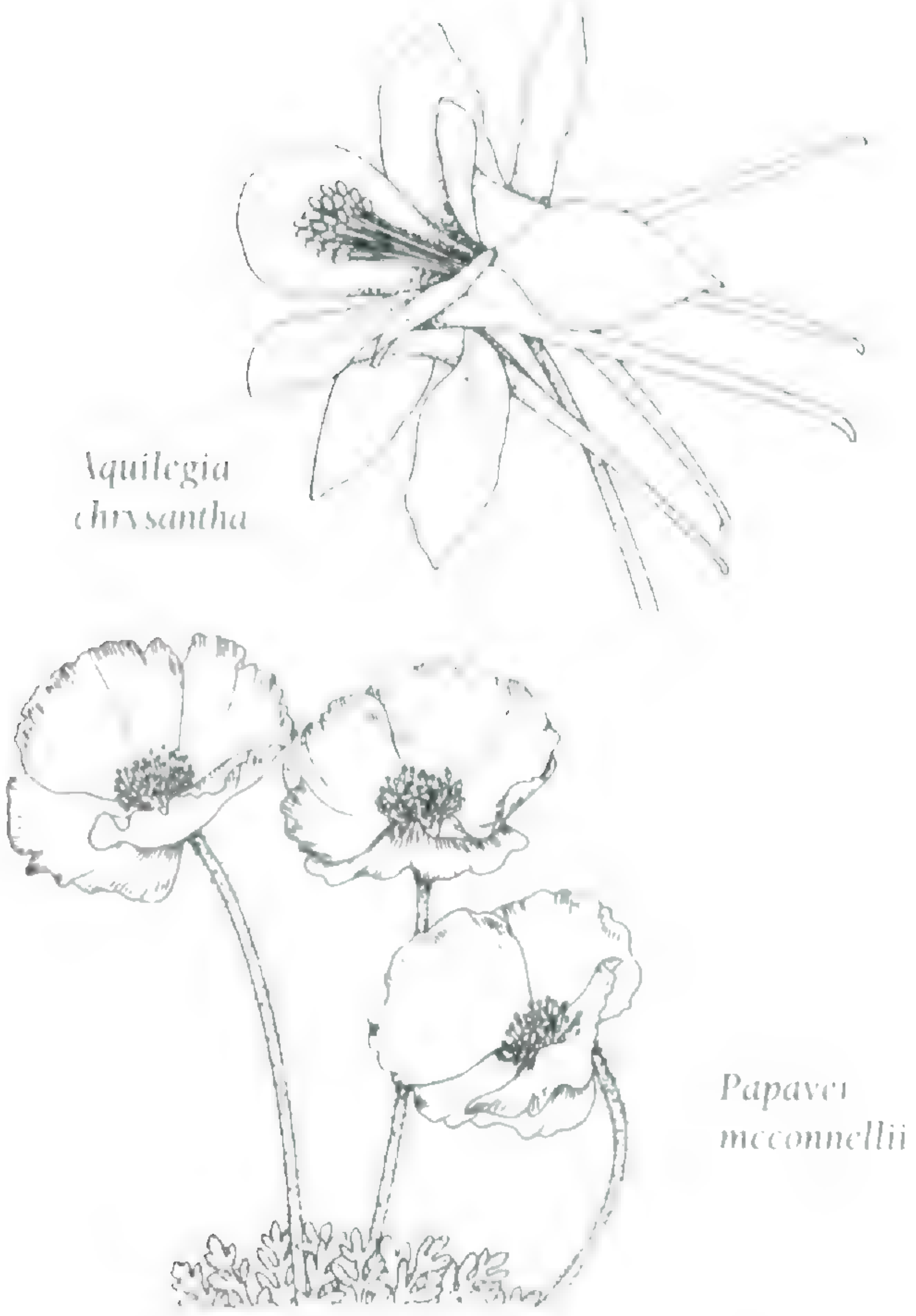
The colorful new Flower Borders will be a welcoming sight for visitors to the new gardens. It is appropriate that it is sponsored by Enterprise Rent-A-Car, the largest car rental company in the United States. Enterprise Rent-A-Car was founded by St. Louisan Jack C. Taylor in 1957. In 1973 his son Andrew joined the business, becoming president in 1980; his sister, Jo Ann Kindle, is president of the Enterprise Rent-A-Car Foundation.

The Taylor family and Enterprise Rent-A-Car have a long history of supporting civic and charitable organizations in St. Louis and elsewhere. Andrew C. Taylor has served as a trustee of the Garden since 1989 and is currently chairman of the Steering Committee for the Partnership Campaign. Under Mr. Taylor's leadership, the campaign has already raised $25.7 million of its $35 million goal. Andy also serves as vice-chair for the United Way's 1995 campaign.

Andy Taylor said, "Enterprise and the Taylor family consider the Missouri Botanical Garden important not only because of its magnificent local displays, but also because of its important research work that can benefit people everywhere."

Peter Raven said, "Andy's hard work and enthusiasm for the Partnership Campaign have made a huge impact on our success, and I am absolutely thrilled that the Taylor family has chosen the Flower Borders to recognize the success and mission of the Missouri Botanical Garden. We are very grateful for their generous support in making this beautiful feature part of the demonstration gardens."

National Science Foundation Renews Support for Flora of North America


Aquilegia chrysantha

Papaver mcconnellii

These illustrations by staff artist Yevonn Wilson-Ramsey are examples of the fine drawings that will appear in forthcoming volumes of the *Flora of North America.*

THE NATIONAL SCIENCE FOUNDATION has awarded the Garden a continuing grant of nearly $1 million over the next three years to support the third phase of the Flora of North America project. The award for 1995-96 totals just over $300,000.

Flora of North America (FNA) is an international collaborative effort of hundreds of botanists, with editors working at more than 30 institutions. The project is producing the first comprehensive, unified description of the names, relationships, characteristics, and distributions of the 20,000 species of plants growing naturally in the United States, Canada, and Greenland. The Garden serves as organizational center for the project.

FNA makes up-to-date information on plants and where they grow easily accessible from a single source, often for the first time. The information is of vital importance to a wide range of users, including land use managers, conservationists, and government agencies. The project is of enormous scientific importance as well, including much new and original research. In many cases, FNA represents the only place some of this research has been presented.

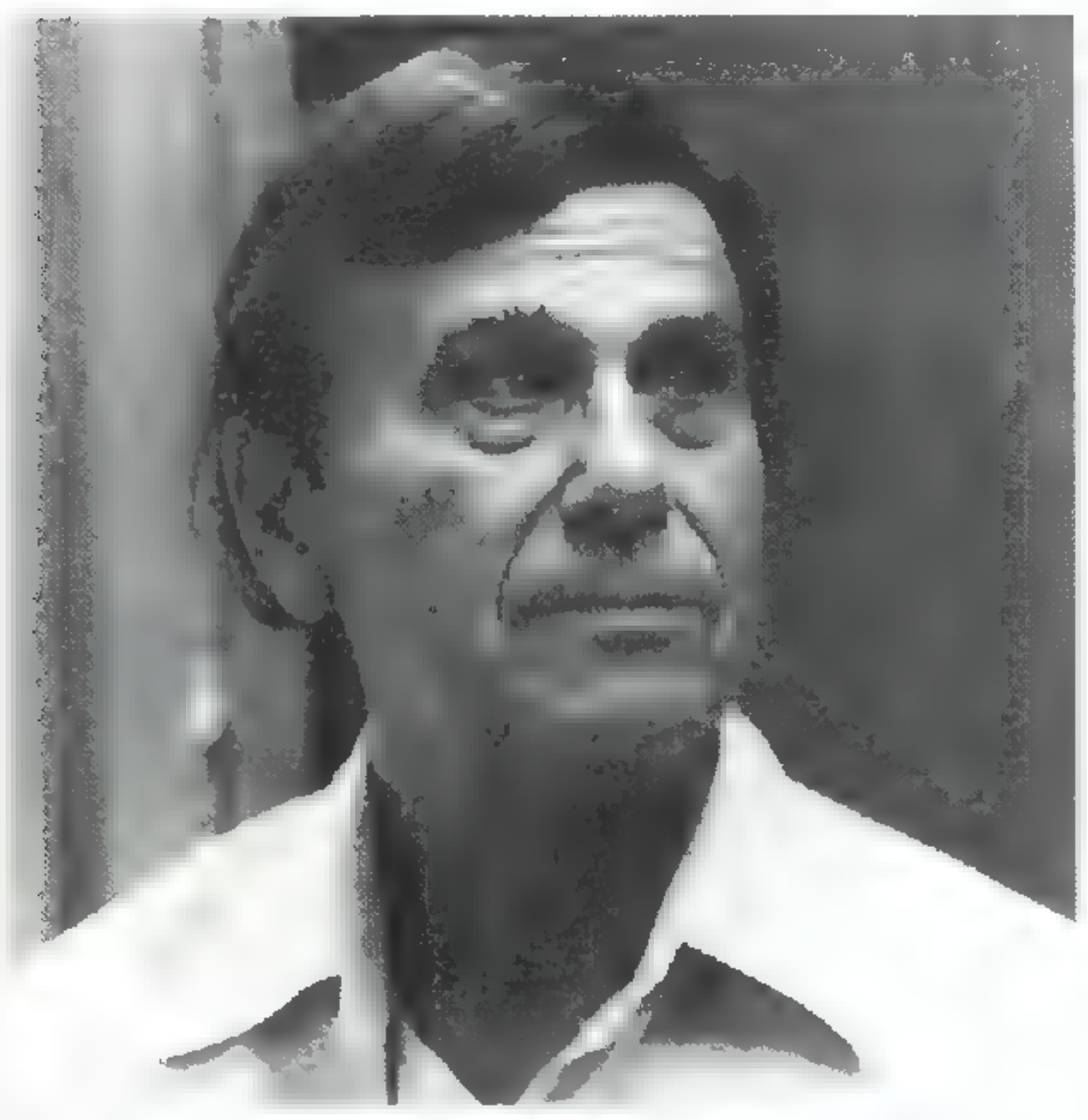
When complete, FNA will include 14 printed volumes, a CD-ROM, a new relational database, and a variety of information available on the Internet, including a full-feature FNA World Wide Web site and easy access to the FNA database. The computer database is kept up-to-date with new material, making FNA a gold mine of information for scientists in many fields of research.

Dr. Nancy Morin, assistant director of the Garden and convening editor of FNA, said, "We are extremely grateful for this renewed support from the National Science Foundation, which will allow FNA to proceed to 60 percent of completion. We published our first two volumes in September 1993, and the next volume is due out in in 1996."

FNA has also been generously supported in part by the Pew Charitable Trusts, the David and Lucille Packard Foundation, the Surdna Foundation, the Dula Foundation, the ARCO Foundation, the Edward Chase Garvey Foundation, the Hewlett Foundation, and the National Fish and Wildlife Foundation.

IN THE AUTUMN of 1944, a young botanist from St. Louis made his first visit to the remote "Lost World" region of southern Venezuela. The botanist, who was searching for sources of quinine to aid the war effort, was captivated by the wild region filled with unknown plants. His name was Julian Steyermark, and his fascination with the Lost World has resulted more than 50 years later in the publication of the first comprehensive scientific study of the region.

The late Dr. Steyermark is listed as a champion in the Guiness Book of World Records, credited with more than 138,000 plant collections in his lifetime. A native St. Louisan, he was a graduate of Soldan High School and Washington University, and his landmark publication, the Flora of Missouri, is currently under revision at the Missouri Botanical Garden.

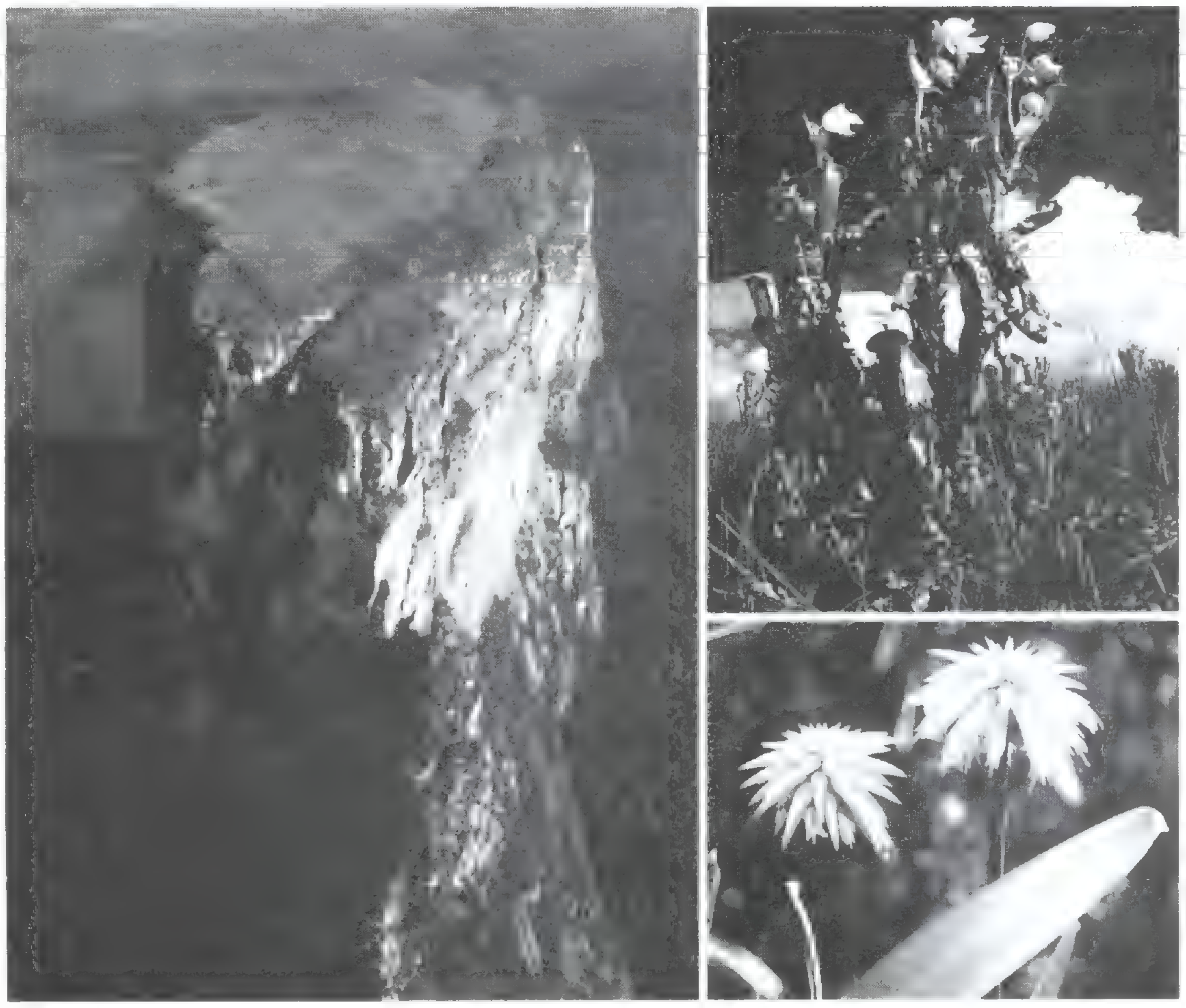


Julian Steyermark

Dr. Steyermark became a citizen of Venezuela in 1959 and collected nearly 28,000 numbered plants from the Lost World region over the next 25 years. In 1983, he initiated the Flora of the Venezuelan Guyana project. In 1984, upon his formal retirement from the Instituto Botánico in Caracas, he accepted an invitation to come to the Missouri Botanical Garden to continue the project, which has been based at the Garden ever since. Steyermark continued to work actively on the flora until his death in 1988.

Flora of the Venezuelan Guayana Publishes First Two Volumes

Flora of "The Lost World"



CHARLES BREWER-CARIAS

All photos are from Amazonas State, Venezuela. Far left: Cerro Autana. Left top: *Heliamphora tatei* var. *tatei*, on the summit of Cerro Huachamacari. Left bottom: *Kunhardtia rhodantha*, on Sierra de Maigualida.

THE VENEZUELAN GUAYANA — the fabled "Lost World" made famous by the novel of Sir Arthur Conan Doyle — is a geologically ancient region of South America. It is home to some 10,000 species of vascular plants, many of which are found nowhere else on Earth. The Lost World is dominated by massive tepuis, nearly inaccessible table mountains that tower over the dense surrounding rain forest.

The Flora of the Venezuelan Guayana, the first full scientific account of the extraordinary plants of this remote region, has been in preparation since its inception by the late Dr. Julian Steyermark in 1983. This fall the first two in the projected series of eleven volumes were co-published by the Missouri Botanical Garden and Timber Press, Inc., of Portland, Oregon. The project has been based at the Garden since 1984 and has been directed by Garden curator Dr. Paul E. Berry since 1988, with editorial assistance from Bruce K. Holst and Kay Yatskievych. More than 180 botanists have contributed.

Much of the regional scientific background of Volume 1 was written by Dr. Otto Huber, an expert in the ecology of Venezuelan plants and a colleague of Steyermark's for many years. Venezuelan artist Bruno Manara, who also collaborated closely with Steyermark for many years, created more than 5,000 botanical drawings for the project.

From left: Editors Bruce K. Holst, Kay Yatskievych, and Dr. Paul E. Berry, project director

In his foreward to Volume 1, Dr. Peter H. Raven writes, "Policy makers, conservationists, botanists, and other interested parties will be able to use...this work to manage, study further, appreciate, and conserve the plants of this extraordinary region. Hitherto, they have been as poorly known as any set of plants on Earth....We at the Missouri Botanical Garden are proud that Julian Steyermark...who first came to love nature in the fields and forests of this area, was able to find the means to complete his life work and to realize his dreams. We delight in the memory of his friendship, and...the shared enterprise that we enjoyed together."

Financial support for the *Flora of the Venezuelan Guayana* project has been provided by the National Science Foundation, the Julian A. Steyermark fund, CVG-EDELCA (Electrificación del Caroni, C.A.), and the Armand G. Erpf Fund.

Teacher Training in the Andersen Computer Laboratory

The E. Desmond and Mary Ann Lee Educational Center features a splendid new teaching laboratory, the Arthur Andersen and Andersen Consulting Computer Facility, made possible by a gift from the partners of Arthur Andersen LLP and Andersen Consulting LLP.* This large classroom, equipped with state-of-the-art equipment, offers teachers and students an opportunity to learn more about computers, experiment with multi-media, and try out current CD-ROM releases and software. Users can also learn to navigate the Internet, gaining access to the information they seek and downloading free software.

Shown here are teachers from the Garden's Education Division, who are being trained to prepare multi-media presentations. The lab gives them the capability to import pictures taken with a digital camera directly into their computers, add recorded sound, and make customized presentations for class groups.

CLIFF WILLIS

Celeste Prussia(standing) trains Garden teachers (from left) Sarah Coppersmith, Libby Kwiatklowski, and Susanne Reed to use multi-media software in the Andersen Computer Laboratory.

Celeste Prussia, supervisor of the Lee Center, said, "Thanks to this wonderful facility, we will be able to offer educational opportunities that might otherwise be unavailable to some teachers and students. The lab will improve their access to science information, and we will be able to help them make better use of their time on the computer. Teachers will be able to 'test drive' new software and help their students use the resources available on CD-ROM and the Internet to improve their science projects, for instance. This is a wonderful new resource for the Education Division and the community."

On page 3 of the September/October issue of the Bulletin, we identified Andersen Consulting LLP incorrectly as "Arthur Andersen Consulting LLP." We regret the error and extend our sincere apologies to the partners of Andersen Consulting LLP. — Editor

Adeyinka Adewale Receives the 1995 Just Scholarship

THE GARDEN has selected Adeyinka Adeola Adewale as the 1995-96 recipient of the Ernest E. Just Scholarship Award. This $5,000 scholarship is awarded to an African-American undergraduate who has an interest in the biological and botanical sciences and who has demonstrated academic success.

TIM PARKER

Adeyinka, one of six children, was born and raised in Atlanta, Georgia, and has been a resident of St. Louis for the past six years. This fall she will be a junior at the University of Missouri–St. Louis where she is working towards a bachelor of science degree in biology and chemistry. She maintains a 3.462 grade point average, with a course load that includes cell structure, applied statistics, microbiology, and biological chemistry.

Adeyinka's academic honors include the National Dean's List, the National Collegiate Minority Leadership Awards, and an Outstanding Academics Achievement Award. Her extracurricular activities include being an American Red Cross Volunteer, a Model United Nations Member, and a tutor at two elementary community schools and at UM–St. Louis. She has worked for two summers doing scientific research at the University of Missouri and the University of Kansas.

As a Just Scholarship winner, Adeyinka will speak to students at local high schools to help promote the study of science with younger children. "Adeyinka is the fourth St. Louisan to receive the Garden's highest honor for undergraduate achievement," said Dr. Peter H. Raven, director. "Her record and accomplishments are outstanding. Her future is exceptionally bright and the Garden is proud to be a part of her education."

Dr. Ernest E. Just was one of this century's leading scientists. His research work in cell structure was influential in both medical and biological science. Dr. Just was the first recipient of the NAACP's famed Spingarn Medal.

The Missouri Botanical Garden encourages African-American undergraduate sophomores studying science to inquire about the Just Scholarship program by writing the Missouri Botanical Garden, Education Division/Just Scholarship Program, P.O.Box 299, St. Louis, Missouri 63166. The renewable scholarship is based on academic accomplishment and well-rounded civic and social involvement.

Honoring the Future of Science Education in St. Louis

ON October 3, 1995, Henry Shaw Medals were presented to Mr. and Mrs. E. Desmond Lee and Mrs. Cleatus Curry, in honor of their outstanding leadership in improving science education in St. Louis. The medals were presented at the Garden's annual dinner in honor of major Garden donors, held at the Ritz-Carlton. The Henry Shaw Medal is the Garden's highest award. It has been presented intermittently since 1893 to individuals who have made a significant contribution to the Missouri Botanical Garden, botanical research, horticulture, conservation, or the museum community. Past recipients include Edward O. Wilson, Marlin and Carol Perkins, S. Dillon Ripley, and William D. Ruckelshaus.

E. Desmond and Mary Ann Lee

In 1994, Mr. and Mrs. E. Desmond Lee and their family announced an extraordinary gift to the St. Louis community, establishing the E. Desmond Lee and Family Education Program to improve science education for underserved St. Louis schools. In 1995, Mr. and Mrs. Lee also gave the naming gift to purchase and renovate a building near the Garden to provide urgently needed space and classroom facilities for the Garden's education programs.

Mr. and Mrs. Lee recognize that helping teachers is one of the best ways to help students. Consequently, the Lee Family Education Program provides support on an unprecedented scale for training teachers in science and for increasing the educational opportunities available to their students. The Lee Education Program was a three-way gift to the Garden, the St. Louis Science Center, and the Saint Louis Zoo, supporting the work of each institution and creating, in effect, a partnership for improving science education in St. Louis.

With the support of the Lee Family Education Program, the Garden is pursuing its long-term goal of making profound, system-wide improvements in the quality of science education in St. Louis schools. The Garden's Education Division now includes a coordinator and an instructor for science outreach who work closely with educators to plan and implement effective new curricula. Because of Mr. and Mrs. Lee's vision in making their landmark gift, more children will enjoy the benefits of scientific training and will be challenged to pursue careers in science.

Mr. Lee said, "Mary Ann and I feel greatly honored and fortunate to be associated with the Missouri Botanical Garden on such a worthwhile program. We both believe that the future of our community and our nation lies with providing educational opportunities to our youth. Science is probably the most important approach to this mission."

Marlina Curry

As a teacher in the St. Louis schools, Marlina Curry has been using science to challenge and motivate her students for over 20 years. "I had a wonderful kindergarten teacher when I was growing up," she said, "and I have wanted to be a teacher ever since." She is an extraordinary teacher, and her students have reaped the rewards of her commitment.

Last spring Mrs. Curry's kindergarten class at Cote Brilliante Elementary School won their division at the Greater St. Louis Science Fair for the fourth time in the past six years. The Fair is open to more than 60,000 students from public, private, and parochial schools throughout the St. Louis metropolitan area who have already won science fairs at their schools.

CLIFF WILLIS

Marlina Curry

Mrs. Curry's students choose their science projects themselves, perform the experiments, and keep journals of their data, all as a regular part of their school day. Mrs. Curry finds that working together on the class science fair project also encourages children to develop their skills in reading, writing, analytical thinking, and teamwork.

"When we do a science project, I like to ask the students, 'What do you think will happen?'" Mrs. Curry said. "Often it is the children who are less successful in academic skills who come up with the most original ideas. Science projects give everyone a chance to do what he or she is best at, and to work together as a team."

For their prize-winning project last spring, Mrs. Curry's class decided to experiment with growing plants using different household solutions as plant food. The students were inspired by a visit from Nancy D'Arcy, a teacher based at the Garden, who gave the class some tulip bulbs in the fall and introduced them to fertilizer.

To enrich classroom opportunities for her students, Mrs. Curry serves as a lead teacher for the "Growing Science Inquiry" teacher training project funded by the National Gardening Association and the National Science Foundation, which held its summer institute at the Garden last summer. She has received grants from the Missouri Department of Elementary and Secondary Education for programs she developed, "Enhancing Self-Esteem Through Science" and "Leaping Into Literacy," which will be used as a model program next summer in four schools to provide children with educational opportunities during the summer.

In 1992, Mrs. Curry received a National Audubon Society Scholarship to attend Western Ecology Workshops in Wyoming. In 1986, she was selected to participate in the Science Education Resource Institute at St. Louis University, funded by the National Science Foundation. A native St. Louisan, she earned her bachelor's degree from Harris Teachers College in 1970 and her M.A.T. from Webster College in 1979. She is a graduate of Soldan High School.

Home Gardening

THE GARDEN IN WINTER

NOW THAT THE LEAVES are gone, our gardens reveal the strong, bold lines of the winter landscape. Ice encrusted branches and bold trunk strokes draw the eye in a way only winter allows. Now is the time to plan for creating garden designs that are impressive even when the plants are stripped of their greenery and soft leaf edges.

Trees

Trees with strong horizontal branching patterns, namely the kousa dogwood, *Cornus kousa*, redbud, *Cercis canadensis*, and varieties of apples and crabapples, *Malus*, soften the stiff corners of houses and roof lines. The common apple tree, with its gnarled brown limbs and occasional clinging fruit, remains the most romantic and inviting; with their low, spreading branches, apple trees are much easier to climb without all the leaves.

Bark

Trees with exfoliating bark add color and texture to winter landscape. Sections of the bark peel away to reveal other colors in layers below. Paperbark maple, *Acer griseum*, Korean stewartia, *Stewartia koreana*, and kousa dogwood all deliver shades in earthy hues. The sycamore, *Platanus occidentalis*, is a large tree with spectacular exfoliating bark, but watch out for summertime pests that can disfigure the leaves and sometimes cause leaf drop.

The texture of tree bark also adds interest to the winter landscape. The bark of shagbark hickory, *Carya ovata*, breaks into thin plates that are free at the ends and attached in the middle, creating a delightful shaggy appearance. Mature amur corktrees, *Phellodendron amurense*, produce bark that is ridged and furrowed into a cork-like pattern.

Color

Colored stems of shrubs add brilliance to the rather subdued winter landscape. Stands of red or yellow-stemmed dogwood, *Cornus alba* 'Sibirica' and *C. stolonifera*, are only enhanced by surrounding snow cover and birds in their branches. I do not recommend intermixing these plants, as it dilutes the color. These dogwoods colonize rapidly and deserve plenty of room.

Christmas card views can be created by planting clumps of holly, *Ilex ∞ meserveae* 'Blue Princess,' 'Blue Prince,' or 'Blue Stallion,' around a bird feeder filled with red cardinals. You will need to include at least one male holly in your group to ensure fertilization and red berries on the females. Black sunflower seeds in the feeder should attract the cardinals.

Evergreens

Various shades of green really stand out in the winter landscape. The leaves of yew, *Taxus cuspidata*, and boxwood, *Buxus sempervirens*, are dark green above and yellow-green below. Their color seems to shift as the light changes. Hollies range from dark lustrous green to almost blue-black. Though rhododendrons are popular sources of green in the winter landscape, I prefer to avoid placing large leaf varieties in highly visible areas, as the leaves droop pitifully during cold spells. The small-leafed rhododendrons are much more attractive near walkways and doors in winter.

Grasses

The sound of wind rustling ornamental grasses adds character to the garden in winter. *Miscanthus sinensis* 'Floridus' and *Erianthus ravennae* are two tall, stately grasses that move and sway in stiff breezes. Silver beard grass, *Bothriochloa saccharoides*, is slightly smaller, reaching about three feet in height, and hosts silvery white inflorescences.

Groundcovers

Groundcovers add greenery and texture to the landcsape floor. Pachysandra, *Pachysandra terminalis*, periwinkle, *Vinca minor*, and asarum, *Asarum europaeum*, dress up shady areas, while bearberry, *Arctostaphylos uva-ursi*, produces red berries that add a touch of color to a sunny location.

A Touch of Whimsy

Paths of native rock and fancy pebbles are delightful to crunch over in winter and provide some traction even when covered with ice. Add an ivy necklace or a holly crown to garden statues. Life-size straw figures can be propped on benches or seated in Adirondack chairs. Stuff vacant planter boxes and urns full of evergreen branches and holly boughs. Add sprigs of red holly berries or orange bittersweet vine to draw attention to your winter designs.

Wildlife

Attract birds and animals to your landscape in winter by planting to provide shelter, food, and access to water. Eastern red cedar, *Juniperus virginiana*, produces berry-like cones eaten by songbirds and turkey, while deer like to eat the foliage. Both autumn and Russian olive, *Elaeagnus umbellata* and *E. angustifolia*, provide cover for and food to a multitude of songbirds, quail, grouse, doves, pheasants, turkey, and rodents. A few apples left on the trees or uncut chives and parsley in the herb garden will attract both deer and rabbits to your yard. And don't forget to keep birdbaths open during icy weather. A specially designed heater placed in them is an easy way to keep the water from freezing.

— Ellen A. Vincent Strother,
University Extension

The William T. Kemper Center for Home Gardening is open 10 a.m. to 4 p.m. daily. Admission is free with regular Garden admission. For information on classes and activities at the Center, please call (314) 577-9440.

The Plant Doctor is available at the Kemper Center for walk-in consultations from 10 a.m. to noon and 1 to 3 p.m. Monday through Saturday.

In November and December, the Kemper Center features wonderful, colorful displays: "The Harvest" and "The Holiday Tree."

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	*David Brown*	727-2385
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Iris Society of Greater St. Louis	*Jim Loveland*	349-4977
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Carole Sebastian*	993-9270
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Sue Reed*	965-6813
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
West County Daylily Club	*Roy Bohrer*	240-8780

TELEPHONE HELP

The Garden has several telephone services available to assist you.

GardenLine **577-9400**
24-hour recorded information about Garden events, hours, admission and directions. Outside area code 314, call **1-800-642-8842** toll free, 24 hours a day.

Horticultural Answer Service **(314)577-5143**
Monday through Friday, 9:00 a.m. to noon, Master Gardeners are on hand to answer your gardening questions.

Master Composter Hotline **(314) 577-9555**
9:00 a.m. to noon, Monday through Friday. Specially trained Master Gardeners are on hand to answer your questions about yard waste management techniques. After hours leave a message and your call will be returned. The Master Composter program is supported by the Monsanto Fund.

HortLine **(314) 776-5522**
24-hour recorded gardening information is available with a touch tone telephone. You will need a brochure listing the hundreds of HortLine topics in order to use the service; you may request a brochure by calling the Kemper Center for Home Gardening at (314) 577-9440, 10 a.m. to 4 p.m. daily, or send a stamped, self-addressed envelope to HortLine, Kemper Center for Home Gardening, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

THE PLANT DOCTOR

"PESTSELECTOR" AND "NURSERY TRACKER" — Two new computer databases are now assisting visitors at the Kemper Center. "PestSelector" provides accurate recommendations for managing specific problems with insects, diseases, weeds, and pests. Integrated pest management and low-impact environmental methods are emphasized. The "Nursery Tracker" helps gardeners to locate nurseries in the bi-state area that supply specific plants; about 200 nurseries are participating. To learn more about these new services, visit the Plant Doctor Desk in the Kemper Center. Above, Master Gardener Rhonda Porche-Sorbet demonstrates the system for Viktor and Elizabeth Prater.

New Master Gardener Training Course

THE UNIVERSITY OF MISSOURI–COLUMBIA is offering a new Master Gardener Level I course in home horticulture to be held on Wednesdays, January 3 through April 10, from 9 a.m. to noon. The 15-hour class will be taught via fiber-optics at UM-St. Louis.

Students may enroll as part of the Master Gardener Training Program offered by the Garden and University Extension. Master Gardener students pay $100 and perform 50 hours of volunteer work. Homework and tests are required. Applicants for the St. Louis Master Gardener Program will receive an application form and will be interviewed at the Missouri Botanical Garden.

Students may also arrange to take the course for three college credits or on a non-credit basis. For more information, or to request an application, please call Mary Ann at the William T. Kemper Center for Home Gardening, (314) 577-9441.

HortLine Offers 24-Hour Help

Call HortLine for recorded gardening information 24 hours a day! For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

Calendar

continuing

Fall Flower Show

9 a.m. to 5 p.m. daily through November 12, Orthwein Floral Display Hall. A stunning display features "The Great American Prairie." Free with Garden admission.

november 5 sunday

Concert Series:
"From the Garden, Live!"

12 noon, Shoenberg Auditorium. Classic 99 KFUO-FM presents its popular series of live radio broadcasts. Today's performance features the Amici Quartet, string trio and piano. Seating is free on a first-come, first-served basis, but tickets are required; listen to KFUO-FM for locations where tickets may be obtained, or call (314) 725-0099. Tickets will not be available at the Garden.

november 9 – 11

thursday – saturday

Holiday Preview Sale

9 a.m. to 7 p.m., Thursday and Friday; 9 a.m. to 5 p.m., Saturday; Garden Gate Shop. Members receive 20% off all merchandise. See page 17.

november 12 sunday

Grand Opening:
Brookings Interpretive Center

11 a.m. to 3 p.m., Brookings Interpretive Center. Storytelling at 12:30 and 2 p.m.; visits from Saint Louis Zoo animals from noon to 2 p.m. Meet "Mother Earth," visit with Garden botanists, and children receive a special Climatron coloring page.

november 11 saturday

Special Members' Preview: Brookings Interpretive Center

11 a.m. to 3 p.m., Brookings Interpretive Center in the Climatron complex. Garden members get the first look at the exciting new displays, featuring animals from the Saint Louis Zoo between noon and 2 p.m. Enjoy tropical punch and cookies, meet Garden botanists, and receive a special children's coloring page. Exhibit opens to the public November 12. Beginning December 13, the Brookings Interpretive Center will be open daily, 9 a.m. to 5 p.m. Free with Garden admission. See pages 4–5.

december 1 friday

Members' Preview of the Holiday Flower Show

5 to 8 p.m., Ridgway Center. Entertainment, cash bar. Dinner buffet is available in the Gardenview Restaurant for $10.95 per person; no reservations. The Garden Gate Shop will be open, featuring a special 15% discount for members attending the preview party. See next page for details.

november 12 sunday

Concert Series:
"From the Garden, Live!"

12 noon, Shoenberg Auditorium. Featuring the Watanabe Duo, violin and harp. See November 5 for details.

november 19 sunday

Concert Series:
"From the Garden, Live!"

12 noon, Shoenberg Auditorium. Music for two pianos, featuring Mary Motti and Yona Weinberg. See November 5 for details.

november 26 sunday

Concert Series:
"From the Garden, Live!"

12 noon, Shoenberg Auditorium. Cheryl Sushell Bibbs presents art songs and traditional melodies from 200 years of black composers. See November 5 for details.

december 3 sunday

Concert Series:
"From the Garden, Live!"

12 noon, Shoenberg Auditorium. Featuring the St. Louis Brass Ensemble. See November 5 for details.

december 6 & 7

wednesday & thursday

Carols in the Garden

5 to 9 p.m., Ridgway Center and Garden grounds. Featuring the Tower Grove House Candlelight Tour. See back cover for details.

december 7 – 9

thursday – saturday

Holiday Plant Sale

9 a.m. to 9 p.m. Thursday; 9 a.m. to 7 p.m. Friday; 9 a.m. to 5 p.m. Saturday, Garden Gate Shop. 20% discounts for members; see page 17.

december 10 sunday

Concert Series:
"From the Garden, Live!"

12 noon, Shoenberg Auditorium. Featuring the Bach Society of St. Louis. See November 5 for details.

december 17 sunday

Chanukah:
Festival of Lights

11 a.m. to 5 p.m., Ridgway Center. Presented in conjunction with the Jewish Community Centers Association. Featuring a choral

december 2 – january 1

Holiday Flower Show: "A Living Holiday Tradition"

9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. Featuring living and freshly cut flowers and plants as beautiful and unusual decorations. Topiary ivy swans, bronze deer, a bubbling fountain, and a galaxy of twinkling white lights set off an elegant display of colorful poinsettias, coleus, stargazer lilies, Christmas peppers, kalanchoes, gloxinias, and paperwhites. Scented geraniums fill the air with the fragrances of orange, lemon, nutmeg, and cinnamon. Free with Garden admission.

A Victorian Holiday at Tower Grove House

december 5 – 31 tuesday – sunday *Holiday Tours*

Tours 10 a.m. to 4 p.m. daily, every day except Christmas Day. Henry Shaw's historic mansion is decked out in authentic Victorian holiday finery, including colorful garlands, wreaths, and a sparkling Christmas tree. Admission to Tower Grove House is $2 for adults, $.50 for children ages 6 to 12; members are admitted free.

december 6 & 7 wednesday & thursday *Candlelight Tours*

4:30 to 8:30 p.m. Tower Grove House Auxiliary offers its popular annual candlelight tours in conjunction with the "Carols in the Garden" festival. Advance reservations are required. See back cover for details.

december 12 – 15 tuesday – friday *Holiday Luncheons*

Serving begins at noon, Tower Grove House Tea Room. The Tower Grove House Auxiliary will be serving its special holiday luncheons. Reservations must be made in advance; please call (314) 577-5150, beginning November 14. Payment must be received by December 1, 1995.

CHANUKAH *continued*

festival sponsored by the St. Louis Circle of Jewish Music. Craft workshops, sing-alongs, puppet show, storytelling, Chanukah cooking demonstrations, musical performances, and a menorah lighting ceremony and exhibit. Again this year, the menorah will be lighted by a Maccabi torch runner. Visitors are encouraged to bring canned goods for the Jewish Food Pantry, or small toys to be donated to charitable organizations. Tickets to the choral concert are $5 per person; admission to the festival is free with Garden admission. Call the GardenLine, 577-9400, or 577-5125 for more information.

december 30 saturday

Kwanzaa Celebration

Noon to 4 p.m., Ridgway Center. The diversity and richness of African-American culture are celebrated with an exhibit and a cooking demonstration. Learn to play *mancala*, the African game of strategy, and enjoy a special performance of music and dance presented by *Taifa* in Shoenberg Auditorium at 3 p.m. Free with Garden admission. Call the GardenLine, 577-9400, or 577-5125 for more information.

january 5 – 7, 1996

Pre-Inventory Sale

9 a.m. to 5 p.m., Garden Gate Shop. See page 17.

Winter Tram Schedule

The trams that tour the Garden grounds will operate on a reduced schedule from November 1 through the end of February. Trams will leave the Ridgway Center at 10 a.m., 10:30 a.m., 2 p.m., and 2:30 p.m. Visitors who are planning to ride the trams are asked to plan their visits this winter accordingly.

Members' Days

november 4 saturday

Holiday Decorating: "Bringing Warmth to Home and Hearth"

10:30 a.m., Shoenberg Auditorium. Floral designers Deon Riebeling and David Hoffmann from Botanicals on the Park will demonstrate how to create wonderful holiday decorations for your home, your mantlepiece, and your front door, using fresh and dried flowers and accessories. Attendance drawing. Seating is on a first-come, first-served basis. Free, for members only.

december 9 saturday

Holiday Choral Concert

1 p.m., Shoenberg Auditorium. The Saint Louis University Mastersingers under the direction of Susan McMane will present a program of *a cappella* Renaissance madrigals and traditional holiday songs. The singers, dressed in 16th century costumes, will perform works by Cara, Praetorius, Schein, Willaert, and others, with some accompaniment by rhythm instuments and recorders. Seating in on a first-come, first-served basis. Free, for members only.

every day

Free Walking Tours

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a fascinating tour of the Garden. Free with regular admission.

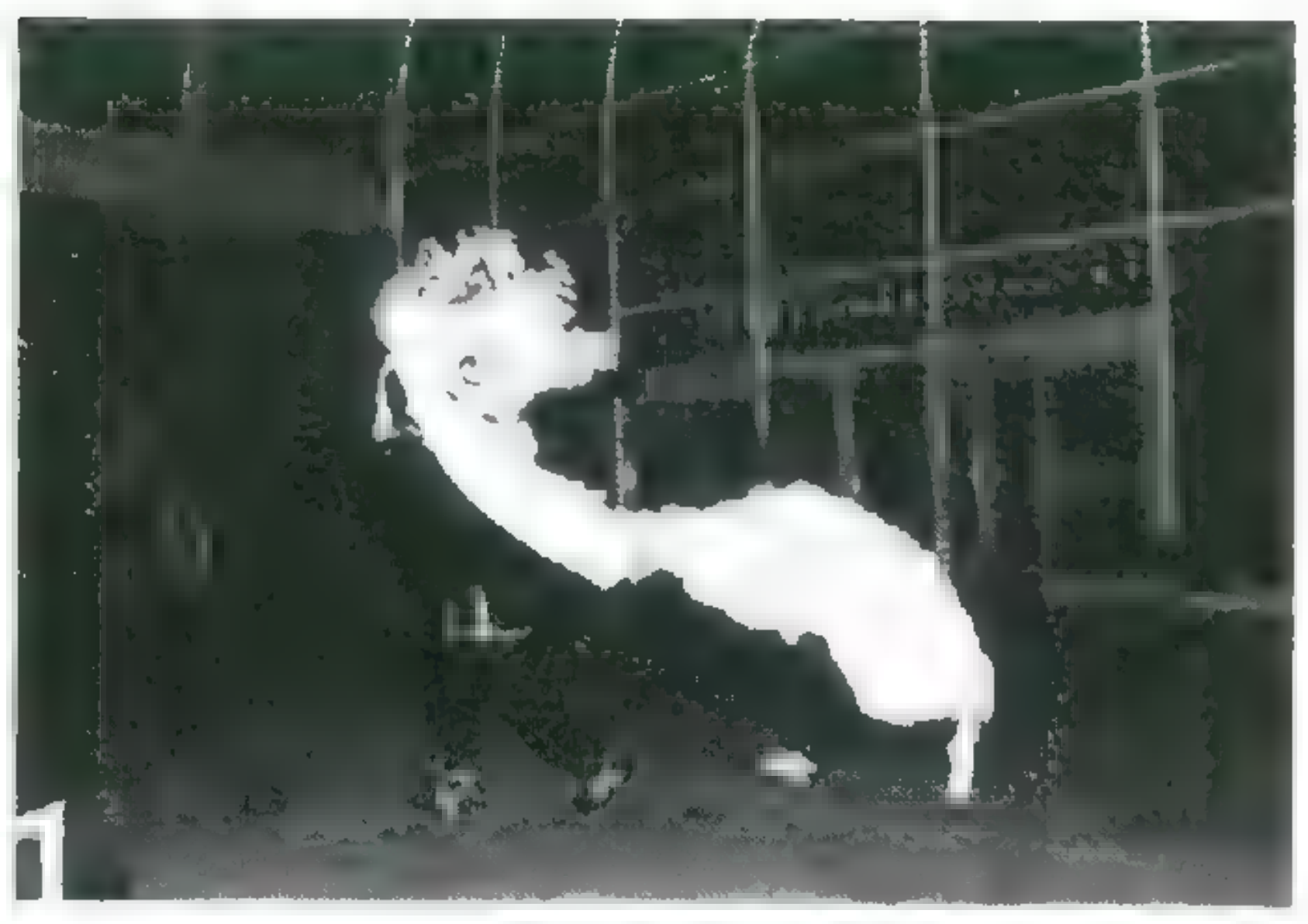
wednesdays & saturdays

Garden Walkers' Breakfast

7 a.m., grounds. In cooperation with the American Heart Association, the grounds open early every Wednesday and Saturday morning to encourage fitness walking. Greenhouses open at 9 a.m. Breakfast is available for purchase in the Gardenview Restaurant, 7 to 10:30 a.m.

Members

CLIFF WILLIS



Left: Margaret Oberheide was honored for her gift of the Chinese Garden. Above: The traditional Lion Dance opened the evening's entertainment.

"Year of the Chinese Garden"

ON a beautiful warm evening, September 30, 1995, the Garden celebrated the new Margaret Blanke Grigg Chinese Garden with a delightful party that included tours of the new garden and traditional Chinese dances, music, food, and entertainment. Honorary co-chairs for the event were Margaret Grigg Oberheide, who gave the Chinese garden in memory of her parents Estelle and Robert Blanke, and William and Anne Tao. Susie Schulte and Jill Dowd served as co-chairs for the party, assisted by a committee of volunteers.

Proceeds from the evening benefit Chinese programs at the Garden, including the *Flora of China* project and the purchase of Chinese herbarium specimens as part of the Partnership Campaign. We extend our deepest appreciation to the benefit sponsors, whose support made the evening a resounding success. Please see the listing at right.

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Thanks also go to Sachs Electric and Fabick Power Systems for their in-kind donations.

And Very Special Thanks to...

Nora Stern and Ellen Dubinsky, co-chairs of the "Best of Missouri" Market, and their committee of volunteers. Their hard work and enthusiasm made the "Best of Missouri" Market a tremendous success for the fourth year in a row.

Holiday Wreaths

December 1 – January 1

Botanicals on the Park • Cumberworth's Fine Flowers • • Jody Delf • C.M. Designs • Designs of Distinction • The Floral Gallery • Charles W. Freeman • Hereford Andrew Designs • • Ladue Florist • Ken Miesner's Flowers • Petals by Irene • • My Secret Garden • Studio P • Connie Gooch and Rhonda Plannett, Schnucks Floral Department

Volunteers Needed

EVEN IF YOUR SCHEDULE does not permit a regular weekly commitment of time, the Garden has many special events that urgently need volunteers. The seasonal plant sales and members' events are just two examples of the activities that need your help for two to four hours at a time, sometimes on weekends.

Volunteers are also needed in horticulture, as attendants in the Spink Gallery, and in administrative support for various departments. The work is rewarding, the surroundings and people outstanding. Training and orientation are provided, so why not take this opportunity to support the Garden and become a volunteer? Please call Jeanne McGilligan at (314) 577-5187 for more information.

Are You the Next Julia Child?

KEMPER CENTER FOR HOME GARDENING is looking for experienced cooks with teaching experience to lead cooking classes for adults. Both basic and advanced classes will be offered. For more information, please call Glenn Kopp, instructional coordinator for adult programs, at (314) 577-5148.

Annual Members' Dues Will Increase January 1, 1996

Featuring The New "Family & Friends Plus"

DUES for "Regular" level members at the Garden will increase from $45 to $50 beginning January 1, 1996. These increases are urgently necessary to help the Garden continue to meet the pressures of inflation and increased demand for services.

Senior memberships, for adults age 65 and over, will remain at $40 per person and will continue to receive the same benefits as a regular membership. Members who renew prior to January 1, 1996, can renew at the old $45 level.

Benefits for a regular membership are:

- Free admission for two adults and children under the age of 18;
- More than 20 invitations during the year to special Garden events including two "members-only" flower show previews, 12 members' days, and four or more major members' events;
- Ten percent discount at the Garden Gate Shop;
- Free subscription to the *Bulletin*;
- Free reciprocal admission at other botanical gardens nationwide;
- Discounts on education classes and facility rentals at the Garden.

"Family & Friends Plus" Membership

MEMBERSHIPS at the former "Contributing" level of $75 will become "Family & Friends Plus" for $100. Family & Friends Plus members will receive all of the benefits of a regular membership, plus free admission to five great Garden events, for up to ten people per event.

Memberships at the "Sustaining" level will increase from $150 to $175 per year. There are increased benefits for higher levels of support.

Holiday Gift Memberships

Special Sale — Save 20%

Thursday, December 7: 9 a.m. to 7 p.m.
Friday, December 8: 9 a.m. to 7 p.m.
Saturday, December 9: 9 a.m. to 5 p.m.

DURING THE HOLIDAY PLANT SALE in the Garden Gate Shop, you may purchase a regular $45 Garden membership for just $36; or purchase a $40 senior membership for just $32. That's a savings of 20 percent off the 1995 membership rates!

You may enjoy your special 20 percent members' discount right away at the Garden Gate Shop sale. Or give a membership gift that will delight your friends all year long.

Each person who receives a gift membership will be sent a limited edition set of ten Missouri Botanical Garden notecards and envelopes, with a holiday greeting from you.

THE GARDEN'S YEAR-END APPEAL

The Challenge of Excellence

IF YOU HAVE TOURED THE GARDEN RECENTLY, we hope you share our sense of amazement, pride, and satisfaction in all the exciting new features on the grounds. No fewer than 25 new gardens — 23 demonstration gardens at the William T. Kemper Center for Home Gardening, plus the Margaret Blanke Grigg Chinese Garden and the Ruth Palmer Blanke Boxwood Garden — are all extraordinary new exhibits. Also well underway are the Piper Observatory overlooking the Kaeser Memorial Maze and the renovations to the Joseph H. Bascom Manor House at the Arboretum.

All of these projects were supported by gifts made specifically to support our current capital fund drive, the Partnership Campaign. But the success of the campaign is only part of the story. Capital improvements are made in answer to the demand for increased services. However, the services themselves are funded by the Garden's operating budget.

Above and Beyond

Your membership dues are an important source of support for the operating budget, but the demand for Garden services still far outstrips our resources. These urgent commitments include the work that goes on behind the scenes to keep the Garden functioning smoothly and looking its best: funds to create and maintain displays, to keep our historic buildings in repair, and to respond to ever-increasing demands for information and educational programs.

As Garden members, you have already been generous with your support through your annual membership dues. But to meet our urgent needs, we must ask you to make an additional gift at year's end.

A Tradition of Achievement

True to its heritage, the Garden has never compromised its commitment to excellence. Even as we respond to greater demands on our resources than ever before in our history, the Garden remains committed to its mission, "To discover and share knowledge about plants and their environment, in order to preserve and enrich life." Since Mr. Shaw founded the Garden, this mission has always been pursued through display, education, and research. Today we can all be proud of the Garden's international reputation for achievement in these areas.

Should We Be Satisfied?

The answer is absolutely not — for it would be dangerous to the future of the Garden to do so. As Thomas Edison once said, "Show me a thoroughly satisfied man, and I will show you a failure." Cutting back on services or sacrificing quality in our programs and displays would be to jeopardize the very excellence that we have all worked hard to achieve.

To address this challenge, your investment in our year-end appeal is vital. As members, you are the cornerstone of the Garden's success. Soon, you will be receiving a mailing or a telephone call asking you to make an additional gift to the Garden this year. As we consider our commitment to the Garden's future, let us not forget that we make a living by what we earn, but we make a life by what we give.

—Ronald J. Oyer, Director of Development

42nd Annual Systematics Symposium

Building a National Partnership

Surveying the biological resources of the United States and other parts of the world was the topic for biologists attending the 42nd Annual Systematics Symposium held at the Garden on October 6 and 7, 1995. Nearly 400 botanists from the United States and abroad attended the meeting.

The keynote address was delivered by Dr. H. Ronald Pulliam, director of the National Biological Survey for the U.S. Department of the Interior. Dr. Pulliam is an ecologist who has authored over 70 publications on topics ranging from biodiversity, landscape ecology, and population ecology of birds to human cultural evolution and behavior. Dr. Pulliam discussed the role of the National Biological Survey and the need for sound science to support resource management. Pulliam called for a broad partnership linking federal and state agencies, academic institutions, and private scientific organizations.

Six other speakers at the symposium delivered papers on topics ranging from the roles of natural history collections to information management to biodiversity and microorganisms. Dr. Nancy R. Morin, assistant director of the Garden, acted as moderator for the symposium.

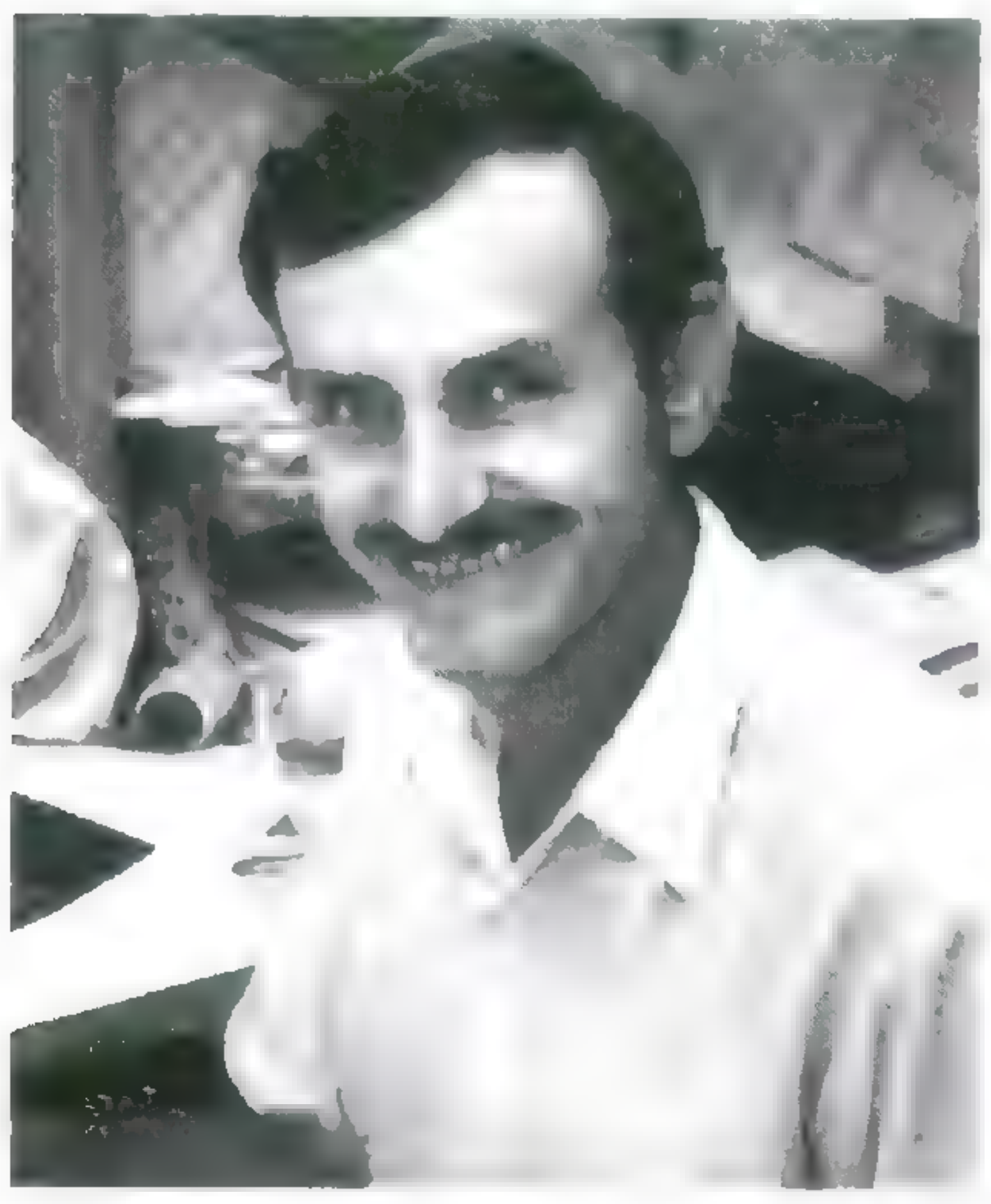
Dr. P. Mick Richardson, manager of graduate studies at the Garden and organizer of the symposium, explained, "The symposium covered the importance of our natural history collections and the vast amount of information available within them. What is the government role? What about bacteria? What is happening in other countries? Why should the U.S. be the leader in this area? These and other issues were discussed, ending with the question of where we will be in the year 3000."

Since 1954, the Systematics Symposium at the Garden has provided a forum for discussing important trends in systematic biology, the study of the interrelationships of organisms. The symposium has received support from the National Science Foundation for 40 of the past 42 years, including 1995.

Speakers and participants, from left: Rahmona Thompson, Meredith Lane, Diana Lipscomb, Ronald Pulliam, Charles Heiser, Anne Frondorf, Peter Raven, Jorgé Soberón Mainero, Lorin Nevling, Nancy Morin.

New Chemical Named for Gentry

A group of organic chemists from the Developmental Therapeutics Program of the United States National Cancer Institute and the Institute of Organic Chemistry of the University of Wurzburg, Germany, have isolated a previously undescribed alkaloid from the African liana *Ancistrocladus korupensis*. They named the new natural product gentrymine B$_3$ in honor of the late Dr. Alwyn H. Gentry, a Garden curator who was one of the world's leading experts on tropical plants.



Alwyn H. Gentry

The new compound is technically classified as an isoquinoline alkaloid. Chemically it is related to anti-HIV and antimalarial compounds isolated from the same plant. *Ancistrocladus korupensis* was an undescribed species when the Garden submitted it to the National Cancer Institute for pharmaceutical screening in 1987. The species was first named and described by Duncan Thomas and me in 1993 in the Garden's taxonomic journal *Novon*.

— *Roy E. Gereau, curatorial assistant, MBG Research Division*

At right: In August, a group from the Russian Academy of Sciences visited the Garden to learn about our programs in plant conservation. From left: Dr. Stanislav Mamaev, director of the Institute of Forests and Botanic Gardens; Lev Andreev, director of the main botanical garden; Dr. Peter H. Raven; and Dr. Igor Smirnov, head of the Laboratory of Seeds and Exploration.

Below: This fall a delegation from the Academia Sinica, Taiwan, spent a week at the Garden discussing cooperative development of software to provide access to the Garden's TROPICOS database on the Internet. Back row, from left: Keith Heerlein, director of Information Services, MBG; Dr. Robert Magill, head of Floristics, MBG; Dr. Peter H. Raven; Christine McMahon, head of Botanical Information Management, MBG. Front row, from left: Chia-Hsiang Chang, Institute of Information Science; Simon C. Lin, director of the Computing Center; Ching-I Peng, Institute of Botany; Chang-Hung Chou, director of the Institute of Botany; Han-Wei Yen, Computing Center; Hong Song, Botanical Information Management, MBG.

CLIFF WILLIS

GARDEN GATE SHOP

For those of you who prefer to shop at home, this year the Garden is offering a selection of its own exclusive holiday cards, calendars, tree ornaments, and gourmet foods in a special brochure mailed recently to all members. All sales benefit the Garden, and you will receive your usual members' discounts, plus extra discounts on our holiday greeting cards; shipping is additional. Telephone orders only, please: call (314) 991-3377.

SPECIAL OFFER FOR GARDEN MEMBERS

Banks' Florilegium Prints

Now Garden members have the opportunity to purchase beautiful individual prints from the famous series, *Banks' Florilegium*, at special prices. A portion of the proceeds from each sale will benefit the Garden.

Banks' Florilegium is a set of 743 splendid full-color copperplate engravings of plants collected on Captain Cook's first voyage around the world in *H.M.S. Endeavor*, 1768-1771. Although the plates were made between 1771 and 1784, they were not printed in color until 1980, when the British Museum (Natural History) and Alecto Historical Editions, London, collaborated to publish a limited edition of 116 sets. Printed by hand using 18th century techniques, the project required nine years to complete. Unlike some fine botanical prints that come onto the market when a disreputable dealer destroys a valuable book, the prints now offered to Garden members were produced specifically for promotional purposes by the publishers.

The prints are in pristine condition, 22-1/2" ∞ 29". Prices start at just $275, and museum-quality framing is available for just $95 at time of purchase, including acid-free materials, conservation glass, handsome oak mouldings, packing, and pre-paid UPS delivery. A color brochure and a price list is available by calling Dr. Mick Richardson of the Garden's Research Division at (314) 577-5176.

November 9 – 11

Holiday Preview Sale 20% Members' Discount

Thursday and Friday: 9 a.m. to 7 p.m.

Saturday: 9 a.m. to 5 p.m.

GARDEN MEMBERS who join us in the Shop will enjoy 20% off all merchandise all three days, plus "Christmas Tea," Wassail, "Holiday Brew," and cookies. This season the Shop will feature all the new pieces in the Dickens Christmas Village, and a large selection of exquisite glass ornaments with legends to tell the story of their holiday traditions. Plus — all your favorite gifts, books, garden accessories, plants, and dazzling decorations!

A Portmeirion Trunk Sale on November 9 will introduce the brand new "Holly and Ivy" and "Blue Harvest" patterns, plus new bath accessories in the popular "Botanic Garden" pattern.

Friday, December 1

Holiday Flower Show Preview 15% Members' Discount

Garden members who attend the preview (or the premiere, by invitation only, on November 30) will receive a special 15 percent discount in the Shop.

December 6 & 7

Carols in the Garden

The Shop will remain open until 9 p.m. both evenings during the Garden's popular festival of holiday music. Come by the Shop for a CD of the popular St. Louis vocal group "Pieces of Eight," who will be performing. Members receive their usual 10% discount on all merchandise.

December 7 – 9

Holiday Plant Sale

Thursday: 9 a.m. to 9 p.m.
Friday: 9 a.m. to 7 p.m.
Saturday: 9 a.m. to 5 p.m.

Members receive 20 percent off all merchandise in the Shop, all three days. The December sale features poinsettias, live decorated holiday trees, Christmas cactus, indoor growing kits, sundials, birdfeeders, chimes, a large selection of Christmas baskets, and a unique group of tabletop fountains.

January 5 – 7, 1996

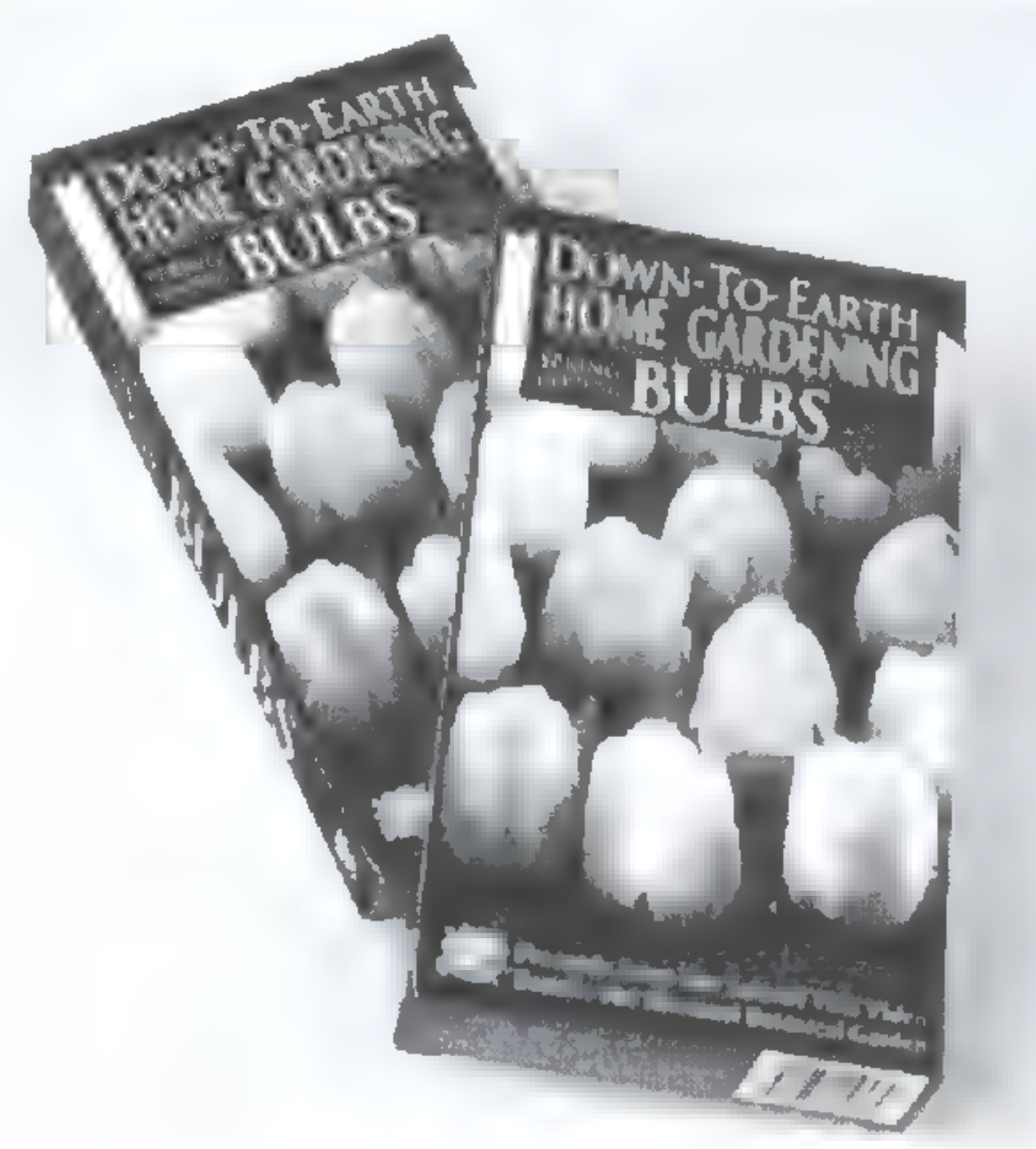
Pre-Inventory Sale

Friday, Saturday & Sunday
9 a.m. to 5 p.m.

Garden members receive their usual 10 percent discount in addition to dramatic price reductions!

The Garden Goes Video

"Spring Flowering Bulbs"


DOWN-TO-EARTH HOME GARDENING BULBS
DOWN-TO-EARTH HOME GARDENING BULBS

Expert information from the Garden's William T. Kemper Center for Home Gardening is now available on video. Beautifully produced, with stunning visuals filmed at the Garden, "Spring Flowering Bulbs" is the first in the "Practical Down-To-Earth Home Gardening" Series produced by the Eden Group of St. Louis. And now this wonderful addition to any gardener's collection of educational resources is available just in time for holiday gift-giving, with proceeds from all sales benefitting the Garden.

"Spring Flowering Bulbs" features June Hutson, Shirley Dommer, and Glenn Kopp of the Garden's Horticulture Division, who provide viewers with clear, expert advice. Over 18 months in the making, the video is carefully designed to be concise and easy to understand. Step-by-step demonstrations lead viewers through the entire process of creating a bulb garden, from where, when, and how to plant, to selecting bulbs and planning the beds, to helpful hints for beautiful results. The video also includes a stunning visual guide to 57 mature bulbs and flowers. Future videos are planned for the series, including "Roses", "Lawns", and "Perennials".

"Spring Flowering Bulbs" is available in the Garden Gate Shop for $19.99, where Garden members will receive their usual ten percent discount. The video is also available nationwide through garden shops, specialty catalogs, book stores, or by calling 1-800-44-GREEN (1-800-444-7336).

CLIFF WILLIS

Have You Noticed — *Jackfruit*

NO, it's not a football! Deb Lalumondier, assistant horticulturist in the conservatory complex, examines the enormous fruits of the jackfruit tree growing in the Climatron. Jackfruit, *Artocarpus heterophyllus*, is a member of the mulberry family, native to Southeast Asia and cultivated throughout the tropics.

The fruits of jackfruit trees are filled with edible seeds surrounded by fragrant yellow flesh that tastes like apples and bananas. The seeds are eaten boiled or roasted.

The jackfruit tree in the Climatron is about seven years old. The green or yellow fruits grow directly on the trunks and branches; at maturity they can weigh up to 100 pounds. Look closely just to the left of the "vending machine" display on the southwest side of the Climatron to see the tree and its interesting fruits.

Volunteers Needed for Glade Restoration at Shaw Arboretum

HEARTY VOLUNTEERS ARE NEEDED for the ongoing ecological restoration of dolomite glades at Shaw Arboretum. Glades are dry grasslands of the south and west-facing slopes of southern Missouri and Illinois, Tennessee, and Arkansas. These natural openings in the wooded landscape once occurred widely, but encroachment of cedars and the resulting shade and changes in the soil under the trees have caused extensive losses of glade habitat.

At Shaw Arboretum, perhaps ten percent of the open glade that once occurred there now remains. Ecologists have discovered that removing the cedars and introducing prescribed burning allows glades to regain their grassy, flowery richness in just a few years. The formerly overgrown habitats once again become suitable for grassland birds, butterflies, collared lizards, and lichen grasshoppers, as well as stunning displays of spring wildflowers.

Work parties are being organized for four Saturdays, December 9, 1995, and January 13, February 10, and March 9, 1996, 9 a.m. to 4 p.m. The work is heavy and dirty and goes on in any weather, but volunteers will be personally involved in the healing of a sick habitat that is an important part of Missouri's heritage. Volunteers should bring a sack lunch and dress in layers appropriate for hard outdoor work. Hot beverages and heated shelter will be provided.

Please call James Trager at Shaw Arboretum, (314) 451-3512, to become involved in this important work.

December Deer Hunt at the Arboretum

IN the September/October 1994 *Bulletin*, I discussed the nationwide impact of a burgeoning deer population on "protected" woodland natural areas. Since that article appeared, studies yielding convincing evidence of the negative impact of deer on prairie vegetation have been presented at two separate professional conferences. Damage to prairie wildflower populations has resulted when deer populations become so high that nearby woodlands are no longer able to support them.

Wildlife biologists estimate that until recently, deer populations in our region ranged from 5 to 15 per square mile. Deer were maintained at this level by the hunting activity of wolves, cougars, and humans. Another deer population control was competition from other herbivores, including the extinct passenger pigeon, which once numbered in the billions and consumed much of the annual acorn crop, an important fall food of deer. While the ecosystem can and does support higher deer levels today, it does so at a price. Stated simply, when deer fill more of the available habitat, there is less space for other creatures.

Natural area managers today are faced with a choice between allowing large numbers of popular and much beloved deer to devour their habitat to a state of biological impoverishment, or managing deer at lower levels for the overall health of the ecosystem. Many nature areas have experienced more serious damage than Shaw Arboretum and have been forced to drastically reduce deer herds. Examples are the Cook County forest preserves near Chicago, the University of Wisconsin Arboretum, and several of Missouri's state parks.

At Shaw Arboretum we seek effective ways to regulate the deer population before it reaches crisis proportions. This is important, because we not only protect existing biological diversity, we are enhancing diversity through habitat restoration.

A deer-free fenced zone protects the horticultural collections in the Pinetum and Whitmire Wildflower Garden. However, over 2200 acres of the Arboretum remain unfenced, and the current deer population (monitored by annual helicopter surveys) is now around three times the historical level. The trained eye can easily detect damage to our plant communities, especially in recently restored areas of the prairie and wetland.

Careful consideration of deer population management options, including live-trapping and immunocontraception, has turned up no effective or humane alternative to a managed hunt. Deer birth control is still in a research phase and not yet practicable on a free-roaming herd on large acreage. It is being studied as a possible future alternative to hunting. A deer hunt will be held at the Arboretum on December 2-3, 1995. Shaw Arboretum will be closed that weekend.

—James C. Trager, Ph.D.
Arboretum Naturalist

TRUSTEE PROFILE *Mark S. Wrighton, Ph. D.*

ON October 6, 1995, Dr. Mark Stephen Wrighton was installed as the 14th chancellor of Washington University. Wrighton, provost and chief academic officer of the Massachusetts Institute of Technology (MIT) from 1990-1995, was appointed chancellor of the university effective July 1, 1995. Under the terms of Henry Shaw's Will, Dr. Wrighton also became a member of the Board of Trustees of the Missouri Botanical Garden by virtue of his office.

Dr. Wrighton graduated from Florida State University with a B.S. in chemistry in 1969 and earned his doctorate at California Institute of Technology in 1972. He joined the MIT faculty in 1972 and became a full professor at the age of 28. When he was named the Frederick G. Keyes Professor of Chemistry in 1981, Wrighton, at age 32, became one of the youngest persons ever to hold a named professorship at MIT. He has been featured in *Fortune, Business Week, Science Digest, U.S. News*, and *Esquire* as one of the nation's leading scientists.

As provost of MIT from 1990-1995, Wrighton led efforts to build new environmental education and research programs. In 1989 he became the first person to hold the Ciba-Geigy Professorship at MIT. His many awards include a MacArthur Foundation Prize Fellowship in 1983 and the E.O. Lawrence Award from the U.S. Department of Energy. Wrighton holds 14 patents and is the author of more than 400 research papers.

Dr. Wrighton succeeds Dr. William H. Danforth, a native St. Louisan who was chancellor of Washington University from 1971-1995 and currently serves as chairman of its board of trustees. During Danforth's 24-year tenure, Washington University was ranked as one of the top national research univerisities in the United States, with one of the ten largest endowments in America. Washington University, founded in 1853, has been associated with 20 Nobel Laureates.

The history of the Garden has been intertwined with Washington University since 1885, when the Garden's founder established the Henry Shaw School of Botany at the university. William Trealease was hired as its first professor, and when Mr. Shaw died in 1889, Dr. Trelease became the Garden's first director as well. Subsequent Garden directors also have served as professors of botany at the university, which awarded its first Ph. D. to a student in the Henry Shaw School of Botany, Anna Isabel Moulford, in 1895.

Dr. Wrighton said, "The University has flourished under the leadership of Bill Danforth and now is poised to build upon the prominence of its excellent educational and research programs. I look forward to working with all of the Washington University community in meeting the challenges that lie ahead."

Dr. Raven said, "I join the rest of St. Louis in enthusiastically welcoming Mark Wrighton to our community. I look forward to working with him and continuing our long history of collaboration with Washington University. I also join the Garden's Board of Trustees in expressing our deep gratitude to William Danforth for his contributions as a Garden trustee during his tenure as chancellor."

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BROOKINGS INTERPRETIVE CENTER
New exhibits debut with a special preview for members.

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A major international research project publishes its first two volumes.

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HOME GARDENING
Landscaping for winter interest.

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CALENDAR OF EVENTS
The Holiday Flower Show, Chanukah, Kwanzaa, and Candlelight Tours.

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Saluting the "Year of the Chinese Garden" benefit and the "Best of Missouri" Market; "Holiday Wreaths" exhibit.

17.
GARDEN GATE SHOP
Holiday shopping features special discounts, two sales, and a new video.

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Carols in the Garden

A Winter Night's Festival featuring the Tower Grove House Candlelight Tour

Wednesday & Thursday • December 6 & 7, 1995 • 5 to 9 p.m.

Enjoy a delightful winter's evening at the Garden as the sounds of holiday music and the scent of roasted chestnuts fill the air.

- **Carolers and musicians perform holiday favorites, including the popular vocalizing of St. Louis's own "Pieces of Eight."***
- **Santa will greet youngsters at Spink Pavilion with goodies and treats**
- **Kids can make pinecone birdfeeders or holiday cards**
- **Spectacular holiday tree at Kemper Center**
- **Wreaths Exhibit in Monsanto Hall**
- **Buffet dinner in the Gardenview Restaurant: $6.75 for adults; $4.75 for children 12 and under; serving from 5 to 7 p.m.**
- **Garden Gate Shop will be open until 9 p.m.**

Admission to the Festival only (5 to 9 p.m.): Includes Garden admission, the Holiday Flower Show, performances by carolers, a visit with Santa, and refreshments: $4 members, $6 non-members, $2.50 children 12 and under. Tickets may be purchased at the ticket counter beginning November 10, or at the door.

Tower Grove House Candlelight Tours (4:30 to 8:30 p.m.): Admission to the Candlelight Tours is by advance ticket purchase only. $13 members, $15 non-members, $11.50 children 12 and under, includes Carols in the Garden, above, plus refreshments in the Tower Grove House Tea Room. Tickets will be available beginning November 10, 1995 at the Ridgway Center Ticket Counter, or call (314) 577 5125.

** You may call 577-5125 for a schedule of performance times.*

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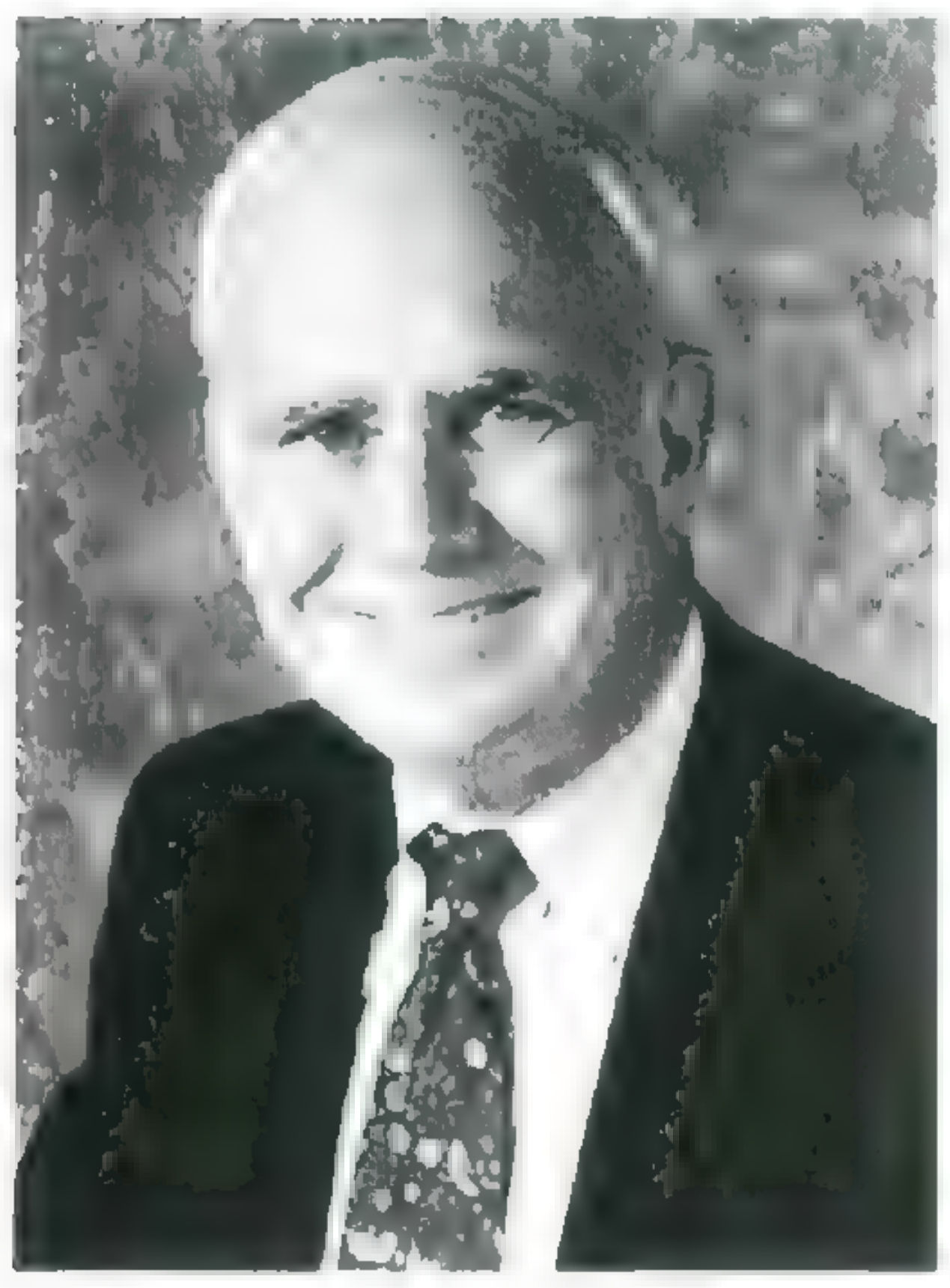
Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS AND THEIR ENVIRONMENT, IN ORDER TO PRESERVE AND ENRICH LIFE."

THIS NEW YEAR OF 1996 will mark a significant milestone for the Garden, as we begin construction of our new research center and welcome visitors to enjoy all of our exciting new features. During the last months, it has often seemed that all of the green space at the Garden was disappearing as we saw large portions of the grounds fenced off for construction. But this spring the fences are down, the new plantings are in, and I think our members and visitors will be delighted with the beautiful results.

If you stroll about the south end of the Garden this winter, you will see that the area between the Museum Building, Tower Grove House, and the Shoenberg Administration Building is undergoing some significant landscaping renovations. These changes are part of the splendid new Victorian garden planned for this area; please watch for full details in the March/April *Bulletin*.



The Garden has made a major commitment to promoting public understanding of environmental issues. We also work to set an example by incorporating sound environmental policies in all Garden operations. Our new research center, described on pages 4 and 5, and our new energy efficiency mandate described on page 9, illustrate two important aspects of our efforts toward responsible use of natural resources.

As the Partnership Campaign gathers momentum this winter for the final push toward our goal, I would like to take this opportunity to thank each and every one of our members for your support. All of the Garden's new facilities are dedicated to providing greater service to you, our members, and to the community; your loyal support helps to make that goal a reality.

— *Peter H. Raven, Director*

PAUL BROCKMANN CELEBRATES 25TH ANNIVERSARY — Paul Brockmann, director of general services at the Garden, was honored in November by the Board of Trustees for his 25 years on the staff. Brockmann (shown above, center, with Peter Raven and John K. Wallace, president of the Board of Trustees, at right) joined the Horticulture Division in 1970 and was appointed to head General Services in 1976. The division is responsible for the safety, security, and maintenance of all Garden structures, shipping and receiving, and managing all Garden construction projects.

A native St. Louisan from Olivette, Brockmann graduated from Horton Watkins High School and earned a B.S. degree in forestry from the University of Missouri at Columbia. He helped build logging roads for the U.S. Forest Service in Arizona during summers while in college and after graduation was employed by the Forest Service in Missouri before coming to the Garden.

Paul's first duties at the Garden under horticulture director Alfred Saxdal included mowing grass, digging beds, planting, and repairing equipment. Today he supervises every decision about the design and construction of new Garden facilities, working closely with architects and engineers. He said, "One of the most satisfying things about this job is seeing the beauty all our efforts help to create."

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this *Bulletin* and mail to:

Name:

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On the Cover

The Shoenberg Temperate House is a delightful oasis on cold winter days.

Photo by King Schoenfeld

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Special Exhibition
January 25 — March 15, 1996

Robert Glenn Ketchum

The Legacy of Wildness

The Garden is proud to present a major 25-year retrospective collection of works by one of America's most brilliant contemporary landscape photographers. The 82 dramatically beautiful color and black and white photographs are drawn from several Ketchum portfolios and books and express not only a profound appreciation of the natural world, but an active concern with our relationship to it.

Robert Ketchum is a recipient of an Outstanding Environmental Achievement Award from the United Nations, and he is one of only four photographers in the world named to the U.N Global 500 Roll of Honor. He has also received the Sierra Club's coveted Ansel Adams Award for Conservation Photograpy. His photographs have appeared in virtually every major museum and corporate collection both here and abroad.

Ketchum was born and raised in Los Angeles, California. He received his B.A. *cum laude* from U.C.L.A. and earned his M.F.A. from California Institute for the Arts. He is currently serving as Curator of Photography for the National Park Foundation.

One of the first contemporary photographers to use his images and his books to convey overtly political environmental messages, Ketchum addresses such critical issues as deforestation, rural gentrification, clean air and water, wilderness preservation, and federal land management. He works with a range of visual metaphors, from landscapes captured in nearly abstract compositions to a more documentary approach, making statements that are both poetic and disturbing.

Whether showing the panorama of a clear-cut mountainside, a lovely but toxic stream flowing through a nature preserve, or the haiku-like beauty of a forest in winter, Ketchum believes in juxtaposing "hard facts" images with lyrical natural beauty. "The Legacy of Wildness" chronicles his remarkable 25-year commitment to art and activism.

> *"Detail, perception, and sensitivity of whole surroundings. The combination of these qualities lives in Ketchum's work. And behind the exceptional work is a deeply committed and talented man."*
>
> *— Robert Redford*

"The Legacy of Wildness" is organized by Aperture, a not-for-profit organization devoted to photography and the visual arts.

The exhibit is open in Monsanto Hall of the Ridgway Center, 9 a.m. to 5 p.m. daily. Admission is free with Garden admission.

Photographs for "The Legacy of Wildness" are drawn from books and portfolios by Robert Glenn Ketchum, including *Overlooked in America: The Success and Failure of Federal Land Management; The Hudson River and the Highlands; Winters: 1970-1980*; and *The Tongass: Alaska's Vanishing Rain Forest.*

Top: "CVNRA #412," 1987. Named for map coordinates.

Center: "View in a Storm," 1973.

Right: "Railyard Adjacent to the Beacon Landing," 1983.

MISSOURI BOTANICAL
JAN 0 4 1996
GARDEN LIBRARY

The New Research Center

U. S. Department of Agriculture Provides Major Support

THE PARTNERSHIP CAMPAIGN received major support this fall when Congress voted to approve the 1995 Agriculture Appropriations Bill, which includes $3.995 million for the Garden's new research center, the major component of the $35 million capital campaign. The new building, to be erected on the southwest corner of Shaw and Vandeventer, will serve as a major international resource of scientific information for corporate, government, and university researchers working in biotechnology and related fields.

Peter H. Raven said, "We are extremely grateful to Senator Christopher S. Bond, Congressman Richard A. Gephardt of St. Louis, Democratic leader of the House of Representatives, Congressman Richard J. Durbin of Illinois, and Congressman William L. Clay of St. Louis and the entire Missouri delegation, all of whom gave their support to the appropriation. We also thank the Monsanto Company and the many others who worked to help achieve the bill's passage."

Raven continued, "The basic research we do here at the Garden will serve to make St. Louis a major resource for the biotechnology industry, creating jobs and strengthening the leadership of the United States in this exciting field. Biotechnology holds promise for using plants for new agricultural products and new treatments for disease, and our new building will place the Garden's program in the forefront."

Designing A Landmark Building

The New Building Will Be a Model of Architecture that Conserves and Recycles Natural Resources

AFTER MORE THAN TWO YEARS of planning, construction is scheduled to begin on the new research center early in 1996. The four-story building on a four-acre site will have 79,000 square feet of space, especially designed to house the Garden's priceless herbarium and library and provide adequate working space for researchers. The Research Division has long outgrown its facilities and currently relies on rented space for some of its offices and storage. The center also will be a model of architecture designed to conserve and recycle natural resources.

The Garden has assembled a formidable team of experts to address these challenges, under the leadership of St. Louis architecture firms Christner, Inc. in association with Louis R. Saur & Associates, Inc. The Croxton Collaborative of New York City, national leaders in environmentally sustainable architecture, are consulting on the project. Landscape design is under the supervision of Environmental Planning and Design of Pittsburgh, who are responsible for the Garden's Master Plan.

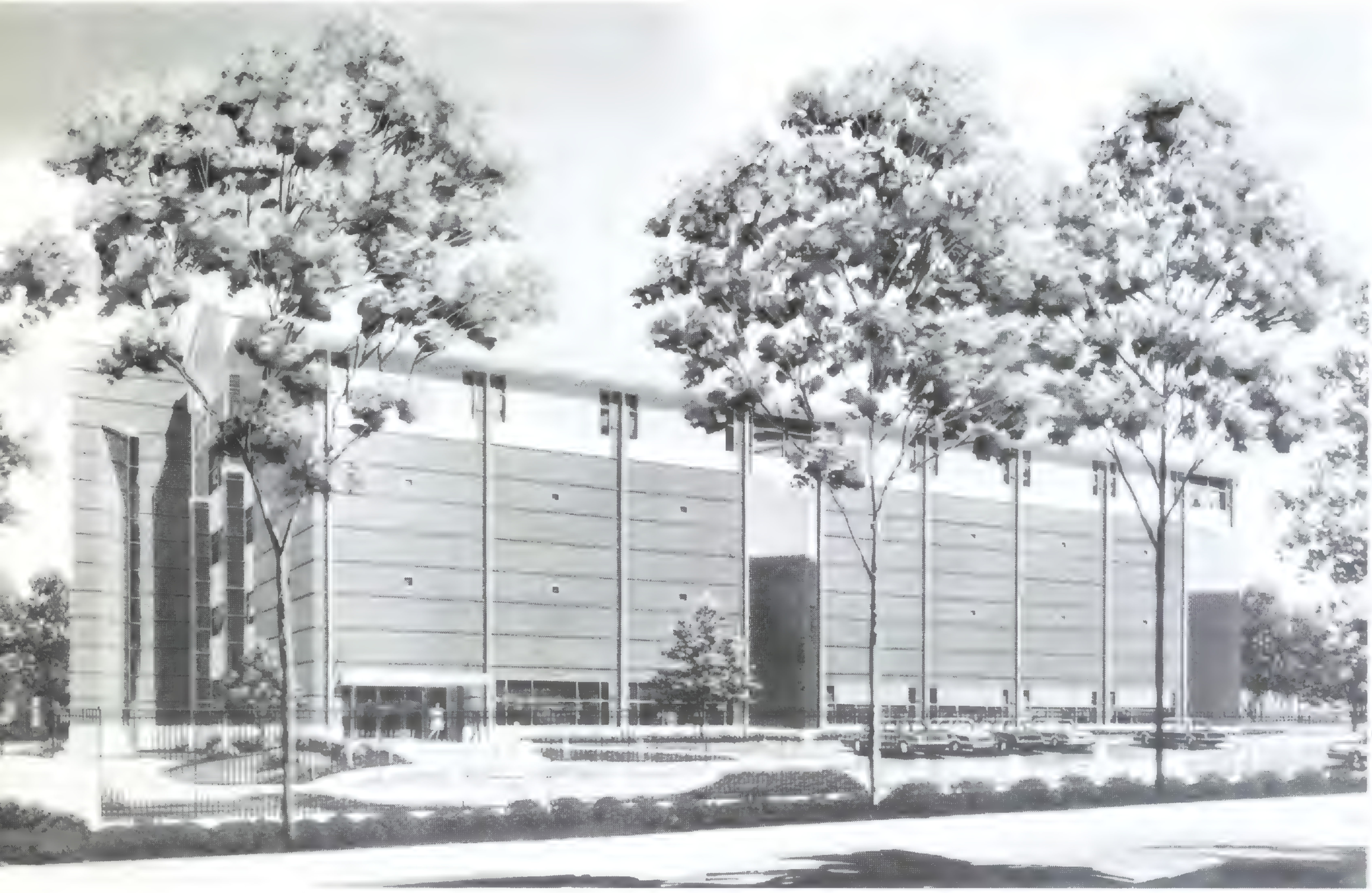
St. Louis firms are consulting on all major aspects of the project. Construction management is by BSI Constructors Inc.; David Mason & Associates are the engineers for structural design. William Tao and Associates are responsible for mechanical, plumbing, and fire protection engineering; Kennedy Associates Inc. are the electrical engineers.

David Greusel, manager of the project for Christner, Inc., explained, "This building presented special challenges. Our first priority was to protect the Garden's herbarium collection. We also worked closely with the research staff to determine how to make it easier for them to use the collection. And finally, we looked at how every aspect of the building's design affected our use of natural resources."

"A Building Within a Building"

Greusel describes the collection storage areas of the research center as a "building within a building." To minimize energy use, the herbarium specimens will be stored in a compact central space where temperature and humidity can be precisely monitored and controlled. Offices and work areas will be located in the outer areas of the building, where the climate will not need to be so carefully controlled and extensive use can be made of natural light. Access between the two areas will be through vestibules, or buffer zones, to limit climate fluctuations. These measures and many others will reduce the new building's energy use dramatically.

Watch for stories on the various innovative features of the new research center in upcoming issues. The first in the series appears on the next page.



Construction of the new research center will begin this winter. The center will be built on the southwest corner of Shaw and Vandeventer near the Garden.

Seismic Protection

The Garden's research center will be one of the first buildings in this part of the country specially constructed to prevent earthquake damage.

Given our location near the New Madrid Fault, source of the most powerful earthquake ever recorded in North America, most St. Louisans are aware of the danger of seismic activity in our area. Between January and April of last year, St. Louis University's seismic network recorded over a dozen earthquakes in our region. National and local building codes have improved significantly in the last decade, but they still focus on protecting people rather than property. Buildings are designed to withstand moderate earthquakes, but the contents of the building and the building itself may still be ruined.

In the case of the Garden's herbarium — nearly five million dried plant specimens collected all over the world, many of historic significance — the collection is literally irreplaceable. Because of the importance of preserving the herbarium, our new building will be equipped with "base isolators," technology that separates the structure from the ground on which it rests.

Hal Colton of Dames & Moore, an expert in seismic structural engineering and consultant to the design team, explained, "Base isolators are horizontally moveable, loadbearing units installed at the bottom of building columns to separate the building from its foundation. A base isolator resembles a stack of pancakes made of alternating layers of bonded steel and rubber. They transmit the horizontal ground motion of an earthquake to the building, but in a slower, more uniform manner than a conventionally designed building. During an earthquake, a base-isolated building moves as if it were on a plate of firm gelatin. The base-isolated building moves as much as a non-isolated building, but much of the movement occurs in the isolators, which the buildings are designed to accomodate. By acting as "shock absorbers," the earthquake forces transmitted to the building are low and its occupants and contents are safe."

Although base isolation technology has been around for a century, it has only been actively developed over the past 20 years in countries around the Pacific Rim. During the 1994 earthquake in Northridge, California, a hospital equipped with base isolators was able to remain fully operational without damage. It reported only a gentle rocking motion with no loss of life or property.

Scientists estimate a 90 percent probability that there will be another major earthquake in the New Madrid zone sometime in the next 50 years. Base isolators are of special benefit in multi-story buildings like our research center, as they minimize movement of the top floors during an earthquake. The isolators will add about five percent to the total cost of the research center, a small investment to protect the Garden's priceless herbarium.

Suzanne Stagg Wright Rock Garden

MR. C. JOHN WRIGHT has donated the Rock Garden at the Kemper Center for Home Gardening in memory of his wife, Suzanne Stagg Wright, because of her love of flowers. Mr. Wright has been a dedicated Garden volunteer for many years, working in the Japanese Garden and with Gateway to Gardening.

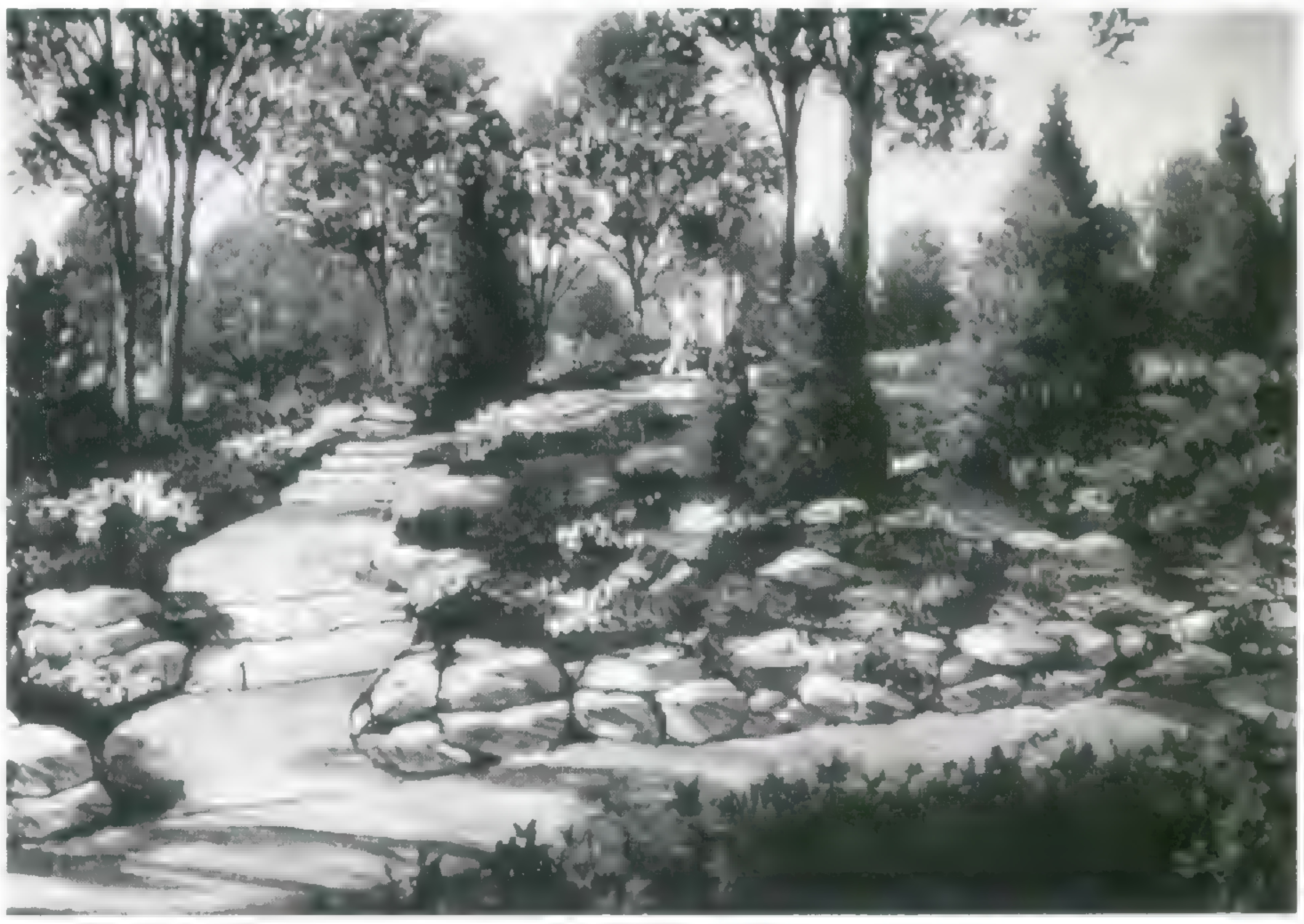
The Rock Garden is one of 23 new demonstration gardens in the William T. Kemper Center for Home Gardening. Located directly above the Prairie Garden, the display features rough-hewn limestone steps that climb the hill overlooking the demonstration gardens.

The garden includes a series of rock formations native to Missouri, including limestone outcrops and layered formations and weathered-surface sandstone boulders complete with lichens and mosses sprouting from cracks and crevices. The rock formations will be interspersed with plantings of dwarf conifers, low growing deciduous shrubs, woodland wildflowers and perennials, groundcovers, forbs, and grasses, including species from around the world that are suitable for the St. Louis climate.

Both Mr. and Mrs. Wright grew up in the city of St. Louis before moving to Webster Groves. He served with the United States Army during World War II in both the European and Pacific theaters. After the war, Mr. Wright worked as an engineer for McDonnell Douglas.

Mr. Wright began volunteering in the Japanese garden in 1985, where he had the opportunity to work with Koichi Kawana, designer of *Seiwa-en*, when Prof. Kawana visited the Garden. Mr. Wright has worked in the Japanese garden longer than any other horticulturist, and often helps to teach newer workers some of the old ways of tending the garden.

Peter Raven observed that, "We are fortunate, indeed, to have friends like John who have given so much of themselves to make the Garden a more beautiful place."



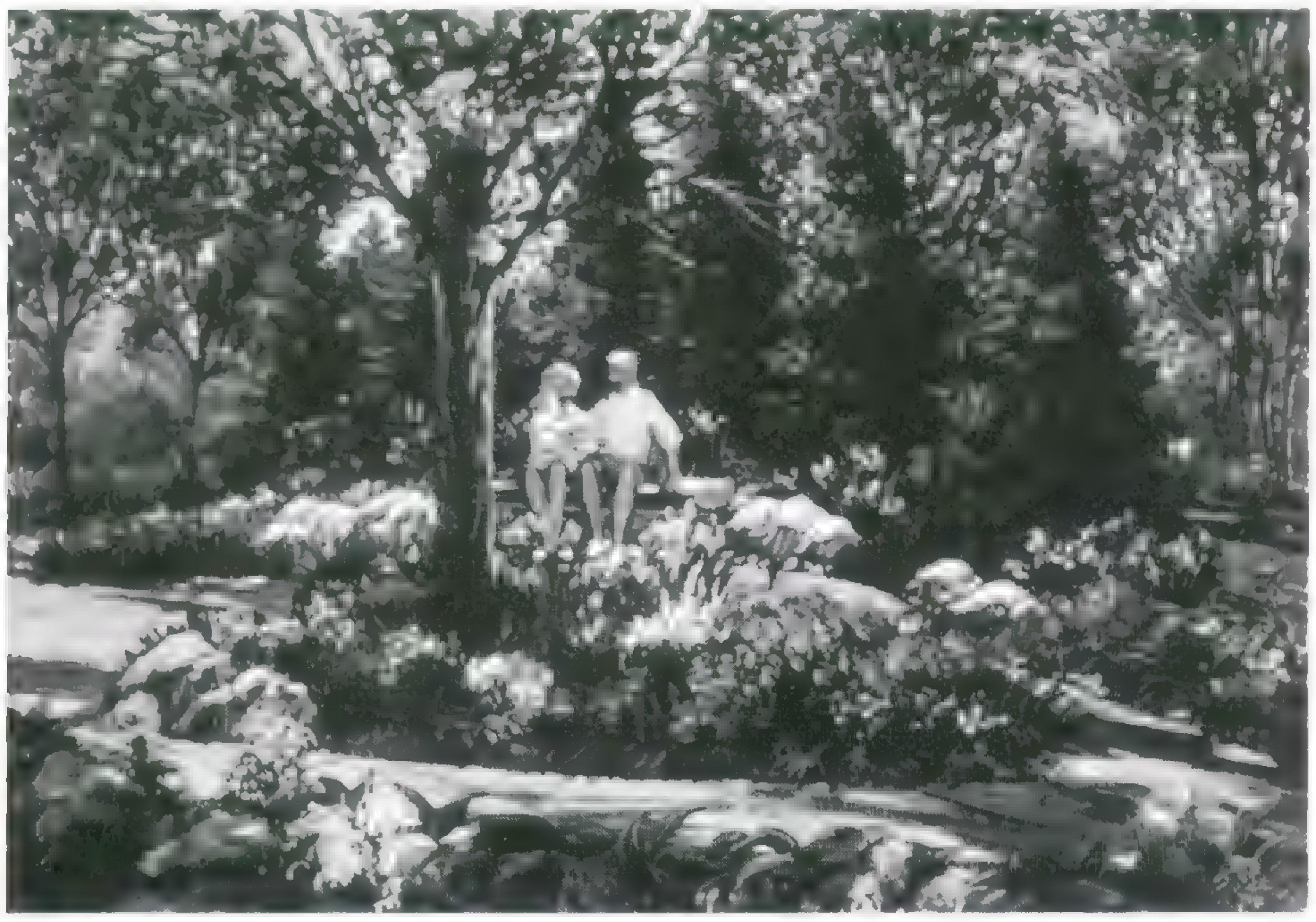
The Martha Love Symington Missouri Native Shade Garden

THE EDWARD K. LOVE CONSERVATION FOUNDATION has made a donation to the Partnership Campaign to name the Missouri Native Shade Garden, one of the new demonstration gardens at the William T. Kemper Center for Home Gardening. Andrew Love, the family representative on the Foundation's Board of Governors, chose the native shade garden in memory of his aunt, Martha Love Symington, to honor the Love Foundation's commitment to conservation in Missouri. The shade garden also reminded Mr. Love of his late aunt's country home.

The Native Shade Garden recreates an area of eastern Missouri woodland, featuring species that are especially suited to our climate. A path winds among sugar maples, white oaks, and butternut hickories that form the woodland canopy. Dogwood, the Missouri state tree, sassafras, serviceberry, and spicebush provide color in the understory beneath the taller trees. The woodland floor, with limestone boulders among the trees, will be planted with shade-loving wildflowers such as bloodroot, Dutchmen's breeches, and Virginia bluebells. A rough-hewn oak bench provides a secluded vantage point for enjoying the garden.

The Edward K. Love Foundation was founded by Andrew Love's grandfather in 1938 and is dedicated to preserving wildlife in Missouri. The Love Foundation has been a generous contributor to Garden programs over the years, providing major support for developing Shaw Arboretum's Master Plan, the plant nursery and the prairie restoration at the Arboretum, the Center for Plant Conservation, and the Campaign for the Garden.

Andrew Love said, "The Garden attracts a large and growing audience of people interested in conservation. Our support for programs and facilities at the Garden and Shaw Arboretum has helped us to realize our goal of educating the public about conservation issues."



Brookings Interpretive Center Is Dedicated

At a private reception for family members and guests, the Brookings Interpretive Center was dedicated on Thursday, November 9. The Center and its exhibits were created with leadership support from the family of the late Robert Somers Brookings, the prominent 19th century St. Louis businessman and philanthropist who created the Brookings Institution and was instrumental in the development of Washington University and its School of Medicine.

Family members attending the reception were Garden trustee Robert Brookings Smith, his wife Nancy, and their daughter Sally Duffield. Mrs. Duffield is president and chief operating officer of The Bellwether Foundation, which oversees family philanthropic activities. Other family members, including John K. Wallace Jr. and his wife Ellen, were unable to attend, but will be recognized in a future issue of the *Bulletin*.

Speaking at the dedication, Peter Raven said, "Members of this family have long recognized the critical need for programs that help all of us make wiser decisions on resource use, as consumers, workers, and voters. In this, they are true heirs of Mr. Brookings, and it is our challenge to share in that heritage."

Dr. Raven also recognized the contributions of the National Science Foundation, which provided significant grant support for the Brookings Center exhibits, and the McDonnell Douglas Foundation, which provided support for the Eco-Carts used in educational demonstrations.

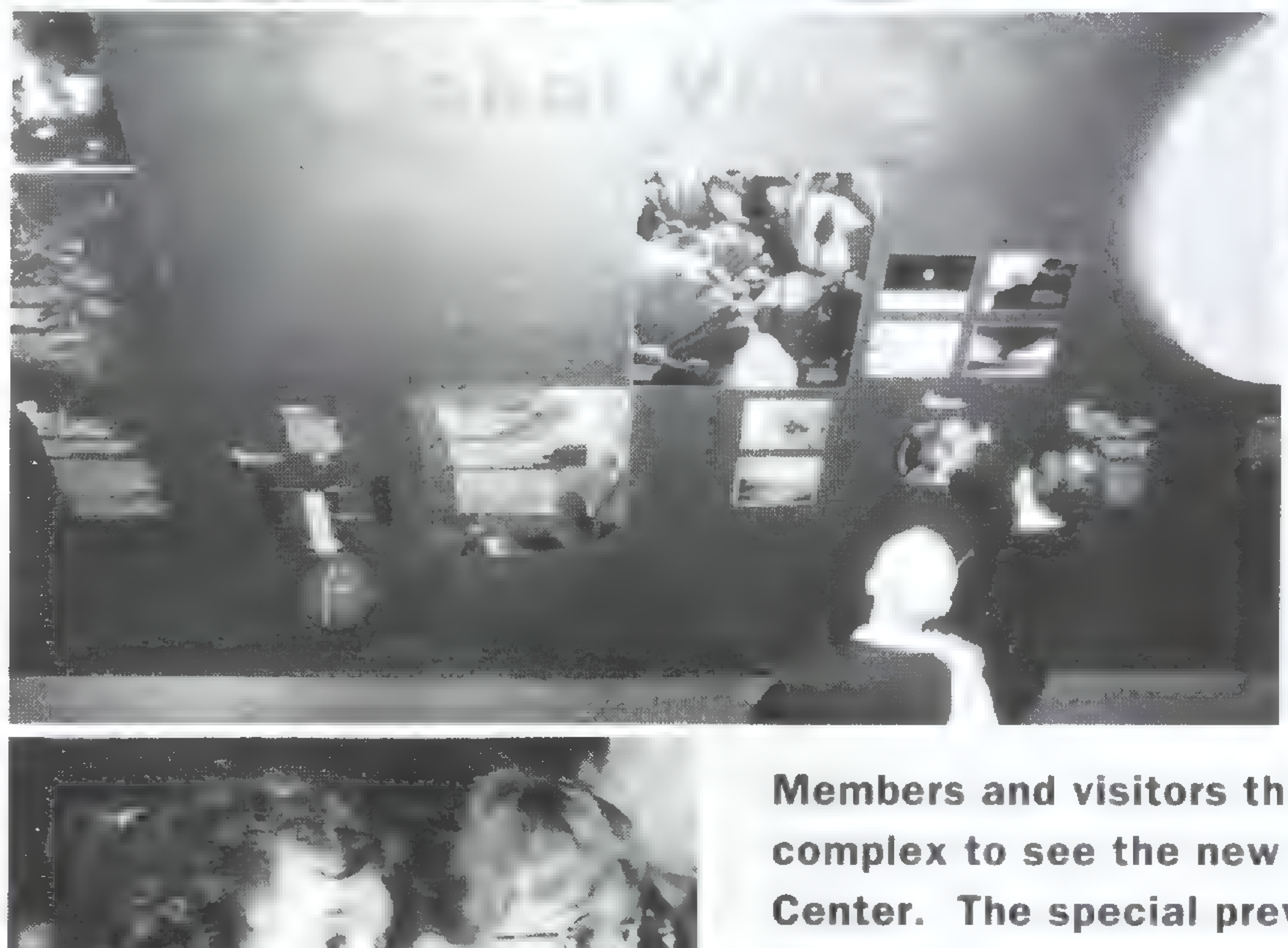
CLIFF WILLIS

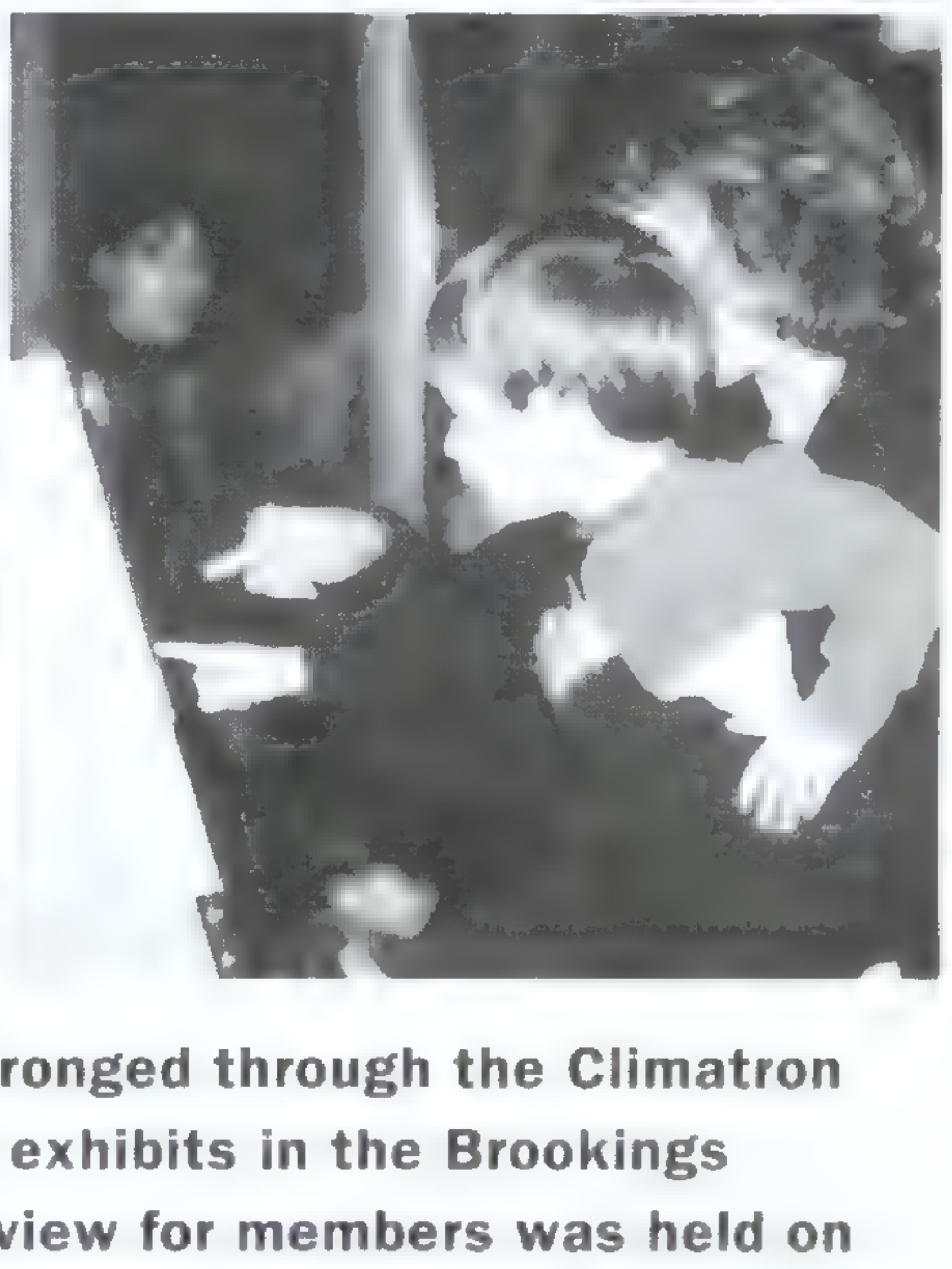
Mr. and Mrs. Smith and Mrs. Duffield are shown above with Peter Raven, who presented them with a handmade stoneware dish designed exclusively for the Garden by Hellmuth, Dunn & Co. The plate is decorated with a yellow passion flower motif, representing *Passiflora citrina*, a hummingbird-pollinated vine endemic to western Honduras and adjacent Guatemala. The species was discovered and named by Dr. John MacDougal, manager of the Garden's conservatories, as part of the Flora Mesoamericana project. The plant is one of several passion flowers growing in the Climatron.

The Brookings Interpretive Center

Window
on the Natural World

PHOTOGRAPHS BY JIM PARKER





Members and visitors thronged through the Climatron complex to see the new exhibits in the Brookings Center. The special preview for members was held on Saturday, November 11, and the exhibits opened to the public on Sunday, November 12. Clockwise from top left: slides in a lighted carousel show views of the rain forest; a colony of ants live in cooperation with acacia plants; computer touch-screens let everyone experiment; panels light up when dials are turned; a science demonstratration enthralls young visitors.

Department of Conservation and Urban League Join Urban Gardening Partnership

IN 1991 the Garden joined forces with University Extension and Gateway to Gardening to form the Urban Gardening Partnership, a coordinated effort to assist St. Louisans to beautify and revitalize their neighborhoods. This past year, the Missouri Department of Conservation and the Urban League of Greater St. Louis joined the Partnership, adding their resources to the alliance. The Partnership has its headquarters at the Garden.

Urban gardening enjoys a rich history in St. Louis. Beginning in 1977, St. Louis was one of six major cities in the United States to be included in a new urban gardening initiative developed by the United States Department of Agriculture. Administered by University Extension, the program assisted thousands of city residents to develop gardens in their own backyards and produce food for improved nutrition. In 1984, Gateway to Gardening created a network of volunteers to help residents transform vacant lots into more than 100 community and school gardens. In 1991, the Garden opened the William T. Kemper Center for Home Gardening, the preeminent source of gardening information in the metropolitan area.

Working together as the Urban Gardening Partnership, the organizations create a larger impact by coordinating their resources, staff, and volunteers. Each year, the Partnership sponsors a city-wide competition to honor outstanding community gardeners with a luncheon held at the Garden.

From left, Michael Adrio, director of Gateway to Gardening; Missy Ramey, Joe Frye, and Ellen Strother inspect a prize-winning community garden.

"This is a wonderful program that produces real results for the people of St. Louis," said Peter Raven. "We are absolutely delighted to have the Urban League and the Department of Conservation add their strengths and expertise to this effort, which holds such exciting promise for the future of our community."

Department of Conservation Supports Neighborhood Greening

This year, the Missouri Department of Conservation gave $89,000 in matching funds to support the Neighborhood Greening Program, a project launched in 1994 by the Urban Gardening Partnership. The Neighborhood Greening Program works with civic agencies and groups of residents to improve the appearance of city streets and empty lots, revitalizing urban neighborhoods by promoting community spirit, leadership, and civic pride.

Neighborhood Greening helps organizations and school groups to create fruit and vegetable gardens, small parks, and picnic areas. The program also encourages planting trees and sidewalk flower gardens along city streets to unify neighborhoods visually. Education is an important part of the program, teaching residents how to maintain and nurture their gardens year after year.

Staff and volunteers of the Urban Gardening Partnership work with Neighborhood Greening participants to plan projects, select plants, acquire materials, prepare the sites, and plant the gardens. Residents take responsibility for the planning, implementation, and maintenance of their greening projects. The program continues with training for ongoing maintenance, community workshops, and technical assistance.

Ellen Strother, a horticulture specialist who leads the Neighborhood Greening Program for University Extension, said, "It's really exciting to see community groups working together to beautify their surroundings. There is a lot of commitment to this program."

In 1996 the Partnership plans to work with projects in six St. Louis neighborhoods: Baden, Vandeventer, the Near North Riverfront, Hyde Park, Grand Center, and Fox Park.

Gateway to Gardening Distributes "Grow Labs"

Each year, thousands of students from kindergarten through high school learn about science using "Grow Labs" provided by Gateway to Gardening (GTG), a not-for-profit organization based at the Missouri Botanical Garden. Since 1984, GTG has provided tools, training, and resources for over 100 community gardening projects.

Dr. Katie Belisle, a Garden horticulturist who volunteers for GTG, says, "Gardening gives children a sense of accomplishment and builds self-esteem as they experience the wonders of growing plants and taking care of them."

Through GTG's school gardening program, students learn to plan, maintain, and harvest outdoor classroom gardens as part of their science and social studies. During the winter months, lighted Grow Labs are used indoors to perform experiments and prepare seedlings for transplanting outside in spring. GTG and its volunteers provide teacher training, lesson plans, Grow Labs, materials, tools, and help to build the outdoor raised beds. Thanks to the work of Gateway to Gardening, many children in the school program discover for the first time that green beans don't come in a can!

A Grow Lab at the Guardian Angel Settlement is used as part of Project Earth Art.

YOU & THE

ENVIRONMENT

Garden Invests in Energy Efficiency

ADDING A LAYER of insulation to the attic can make a big difference in your home heating bills. Now imagine trying to heat more than a dozen buildings, some of them over a hundred years old, many with aging mechanical systems. More efficient equipment saves energy costs and helps to preserve natural resources, but making improvements costs money. In these days of tight financial resources, we all must determine when it makes financial as well as ethical sense to invest in energy efficiency.

The good news is that the return on these kinds of investments can be very high indeed. A recent comprehensive survey of all Garden buildings by the St. Louis firm Energy Solutions, Inc. identified a number of improvements that will pay for themselves in three to five years, on average.

"By comparing the Garden's current utility bills with industry data on the costs of operating with more efficient equipment, we can tell what the energy savings will be," said architect Tim Michels, founder and president of Energy Solutions. "When we compare those savings to the initial cost of improving the systems, it becomes clear that the payback only takes a few years, even allowing for a very cold winter or an unusually hot summer."

Investments in energy efficiency are financially attractive as well as being good for the planet.

Some of the proposed energy efficiency measures at the Garden are as simple as adding more insulation to the attic of Tower Grove House. Some improvements will be more extensive, such as installing stack gas heat recovery systems and perhaps a new heating/cooling plant for the south end of the grounds.

The historic buildings posed special problems. Michels said, "We had to find a way to insulate the windows, for instance, without altering the historic appearance of the buildings. We came up with a way to hang storm windows on the inside, a simple and inexpensive solution."

All of the proposed improvements have been grouped by priority, with paybacks ranging from three to five years, and projected return on investment ranging from 20.1 percent to 31.1 percent. The Board of Trustees has approved an Energy Policy authorizing the Garden to implement these improvements as soon as funds can be raised. Thanks to a grant from the Missouri Department of Natural Resources, the Garden has already achieved annual energy savings of several thousand dollars by replacing the flourescent ballasts in the Ridgway Center and Lehmann Building with more efficient equipment.

"These kinds of improvements are very cost-effective," said Paul Brockmann, director of general services at the Garden. "We're talking about reliable, proven technology, nothing experimental. Our first priority was reducing emissions and conserving fossil fuel resources by improving the Garden's existing systems. Eventually we'll take a look at ways to utilize renewable energy sources, such as solar power."

Tim Michels said, "In many cases, we'll be replacing systems that were installed when everyone thought energy would always be cheap; this equipment is wasteful because it's a lot larger than it needs to be. New equipment, designed to operate at maximum efficiency, may cost a bit more up front, but we want people to realize that these investments are financially attractive as well as being good for the planet."

ARCHAEOLOGICAL EXPLORATIONS AT SHAW ARBORETUM

Digging Up the Past

LAST FALL, 15 hardy people spent five consecutive Saturdays digging up the Arboretum as part of the Field Archaeology course offered by the Garden's Adult Education program. The course was taught by Joe Harl, principal investigator for the Archeological Research Center of St. Louis.

In the summer of 1994, Dr. Harl and a group of students from East Central College in Union identified eight previously unknown archaeological sites at the Arboretum, and this year's dig concentrated on an area at a large bend in the Meramec River.

The sites at the Arboretum were identified by the presence of surface artifacts, such as pieces of stone from toolmaking, brought to the surface by plowing, burrowing animals, and plant roots. Although artifacts can indicate the presence of a site and some information about it, a clearer understanding of the lives of the residents can only be developed by finding the artifacts undisturbed, exactly where they were left.

Most sites discovered in Missouri have been disturbed by farming and logging, but archaeologists can never be certain until they search for remains below the "plow line." The excavation this fall confirmed that the site has been occupied twice: as a prehistoric settlement of the Late Archaic Period, probably 1900-1000 B.C., and as a farmstead occupied by a family of German immigrants named Hundlesen from the 1830s to the 1870s.

The prehistoric site was indicated by stone tools and spear points. The Late Archaic Period was a pivotal time when hunter-gatherers began to establish permanent settlements and trade networks. Only five sites from this period have been excavated in east central Missouri, so the site at the Arboretum could yield valuable new data. No intact remains were found below the plow zone, but future excavations in this area may expose undisturbed remains.

The existence of the Hundlesen family homestead was revealed by a cellar uncovered where the house probably stood. Many materials were found, including ceramic vessels, buttons, bottles, animal bones, and various metal objects. The family's name was revealed by a search of written archives, but very little else is known about them. There is much about the everyday lives of average people in the 19th century that was not documented or was inaccurately interpreted, and analysis of archaeological remains can yield valuable new insights.

An adult education class excavated a site at Shaw Arboretum last fall, under the supervision of professional archaeologists.

LAWNS AND ENERGY CONSERVATION

OTHER THAN THE HUMAN KIND of energy spent raking, weeding, and mowing, it may seem odd to think about conserving energy in home gardens. But consider: the resources we use to build and maintain gardens take energy to create and sustain. For example, home lawns need watering, fertilizing, pesticides, and weekly mowings to keep going.

Cutting the grass is by far the biggest consumer of energy, considering all the gasoline used. Tacked onto this is the impact of emissions on air quality.

Air Pollution

Lawn mowers and other power equipment used by gardeners contribute about five percent to air pollution nationally. The fact is, there are over 90 million lawn mowers with gasoline engines in the U.S. In one hour, an untuned mower can emit more hydrocarbons into the air than a new car driven about 350 miles. You can triple and more than quadruple that figure for leaf blowers and chain saws.

Not to mention the fumes from fuel spilled while filling garden equipment, which can make topping off the car's gas tank look insignificant.

In its work to achieve cleaner air, the Environmental Protection Agency is now setting more stringent emission standards for small engine equipment including lawn mowers, chain saws, weed whips, leaf blowers, and you name it. Below, we consider some alternatives.

Push Mowers

The distinctive whir of the push lawnmower used to be one of the sounds of summer. Today many leading retailers of garden equipment are once again displaying reel-type mowers in their catalogs. No one can disapprove of the emission levels of these mowers; they are low in cost and lightweight to boot. And those looking for an aerobic workout are giving the old push mowers a second look!

Realistically, if you are managing more than a couple thousand square feet of turf, most homeowners would not consider a push mower, especially if you are faced with cutting a zoysia lawn on a 95-degree day in July. Nevertheless, reel mower sales are up; if you are interested, come try ours at the Kemper Center.

Electric Mowers

Personally, I have never owned a gas-powered lawnmower. A long time ago, I decided that cleaning spark plugs, changing oil, and nursing a sore arm from pulling the starter cord were not for me. My first purchase was an electric mower. There is something about just pushing a button to start the engine that appealed to me. Besides being easy to maintain, electic mowers are much less noisy than gasoline powered mowers, and they do not emit smelly smoke or hydrocarbons.

Is the cord a hassle to move around? The key here is multiple outdoor sockets. It is even worth digging an electrical line into the ground and installing a box in the middle of the lawn. And yes, I have run over the cord a few times, but I never have cut it in half. The fact is, if you are cutting at the proper height of two or three inches, even an occasional roll over the cord is no problem. If it ever does happen, a jackknife and a few feet of electrical tape will do the job.

Rechargable Mowers

The latest in lawn care technology is the cordless, rechargeable mower. This is an electric mower powered by a battery that can be plugged into a photovoltaic solar panel unit for recharging between uses. These mowers are now capable of mowing a quarter acre of lawn on a single charge. The solar panel needs to be positioned to get full sun exposure, but beyond that, recharging is just a matter of plugging in the unit.

Initially, the cost of these rechargeable mowers looks steep at around $300 for the mower and $200 for the recharging system. However, you can use a rechargeable mower once a week for six months for the same energy used by a toaster. You can learn more about this new equipment at the Kemper Center and see it in action next summer.

Other Energy-Saving Tips

The beauty and function of a lawn depends on the type of grass you choose to grow, the location of the lawn, the soil conditions, and the appearance you want to achieve. Minimizing the energy costs required for a beautiful lawn is easy with the following suggestions:

- First, minimize the lawn area. Pick a low maintenance ground cover such as ivy, euonomyous, ajuga, or even violets, and plant large areas that do not require mowing.
- Where you need to have lawn, plant buffalograss, a native species that tolerates dry sites and clay soils and does not want to be fertilized or mowed.
- If you already have a cool season lawn of turf-type tall fescue, or a warm-season grass like zoysia, the energy costs of maintainance are going to be roughly the same. Zoysia is perhaps less prone to aggressive weeds and disease problems, which will minimize pesticide applications. Fertilizer requirments are also less for zoysia.
- New varieties of true dwarf fescue are becoming popular because of their lower maintenance requirements. While standard grasses often need to be mowed more than once a week, true dwarf grasses will grow more slowly, requiring less mowing and less fertilizer. Dwarf tall fescue cultivars being grown at the Kemper Center include *Festuca arundinacea* 'Silverado,' 'Eldorado,' and 'Crewcut'.

Watering

Daily watering is not only expensive; it is neither practical nor desirable for a healthy lawn. Frequent watering promotes disease, reduces the air spaces in the soil required for root development, and encourages weed growth. Even if you have an irrigation system that does the job at the flip of a switch, the "once a week rule" applies.

"Grey water" systems are now becoming more accepted, especially in places where water is scarce. Grey water comes from household sources other than dishwashers and septic/sewer discharge. Grey water can be collected from clothes washers, bathtubs, showers, and sinks, then pumped to the garden.

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	*David Brown*	727-2385
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Sue Reed*	965-6813
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
West County Daylily Club	*Roy Bohrer*	240-8780

HortLine Offers 24-Hour Help

Call HortLine for recorded gardening information 24 hours a day! For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

HortLine (314) 776-5522
24-hour recorded gardening information is available with a touch tone telephone. You will need a brochure listing the hundreds of HortLine topics in order to use the service; you may request a brochure by calling the Kemper Center for Home Gardening at (314) 577-9440, 10 a.m. to 4 p.m. daily, or send a stamped, self-addressed envelope to HortLine, Kemper Center for Home Gardening, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

Horticultural Answer Service (314)577-5143
Monday through Friday, 9:00 a.m. to noon, Master Gardeners are on hand to answer your gardening questions.

Master Composter Hotline (314) 577-9555
9:00 a.m. to noon, Monday through Friday. Specially trained Master Gardeners are on hand to answer your questions about yard waste management techniques. After hours leave a message and your call will be returned. The Master Composter program is supported by the Monsanto Fund.

Weeds, Pests, and Diseases

Pest, disease and weed problems can be prevented in most cases, which will reduce energy costs associated with using pesticides. To prevent problems, follow these suggestions:

- Water in the morning;
- Cut the grass two to three inches high;
- Get a soil test in the spring to see which fertilizers you need, if any;
- Wait to fertilize until two to three weeks before the most active period of growth;
- Control weeds by encouraging a healthy, thick lawn. Make herbicide applications only when necessary and preferably in the fall, followed by overseeding in mid-September to early October.
- If you have a lawn problem, get it diagnosed with a recommendation for the appropriate pesticide if required. The Plant Doctor Desk at the Kemper Center has a "PestSelector" computer database and Master Gardeners trained to help you.

— Steven D. Cline, Ph.D.
Manager, William T. Kemper
Center for Home Gardening

The William T. Kemper Center for Home Gardening is open 10 a.m. to 4 p.m. daily. Admission is free with regular Garden admission. For information on classes and activities at the Center, please call (314) 577-9440.

The Plant Doctor is available at the Kemper Center for walk-in consultations from 10 a.m. to noon and 1 to 3 p.m. Monday through Saturday.

HENRY SHAW CACTUS SOCIETY SUPPORTS THE GARDEN — Pat Thomann, president of the Henry Shaw Cactus Society, presented Dr. Raven with the group's annual donation to the Garden. The Henry Shaw Cactus Society has been active at the Garden for over 50 years. In addition to financial support, the group provides expert assistance to the horticulture staff in managing the Garden's valuable collection of cacti and succulents, many of which are maintained in the greenhouses until funds can be raised for a new Desert House.

Calendar

january 5 — 7

friday — sunday

Pre-Inventory Sale

9 a.m. to 5 p.m., Garden Gate Shop. Members take 15% off already reduced prices!

january 27 — february 25

Orchid Show

9 a.m. to 5 p.m., Orthwein Floral Display Hall. Take time out from winter with a visit to Polynesia! Hundreds of orchids in brilliant colors bloom in a magnificent display inspired by the paintings of Paul Gauguin. Follow winding paths through a forest of tropical vegetation, past cooling pools and waterfalls, volcanic rocks, fierce-looking *tikis*, and a thatched grass hut decorated with brilliantly colored *pareos* and hung with tapa cloths. Flower show admission in addition to Garden admission: $2 adults, $1 seniors, free to members.

january 27 — feb. 25

Orchid Sale

9 a.m. to 5 p.m., Garden Gate Shop. See story on page 13.

february 6 tuesday

Special Trip Preview: "South Africa: A Natural History Adventure"

7 p.m., Beaumont Room, Ridgway Center. A slide presentation previews the Garden's natural history tour of South Africa, coming up September 11–26, 1996. All those interested in taking the tour are welcome; see page 16. Free admission.

february 10 saturday

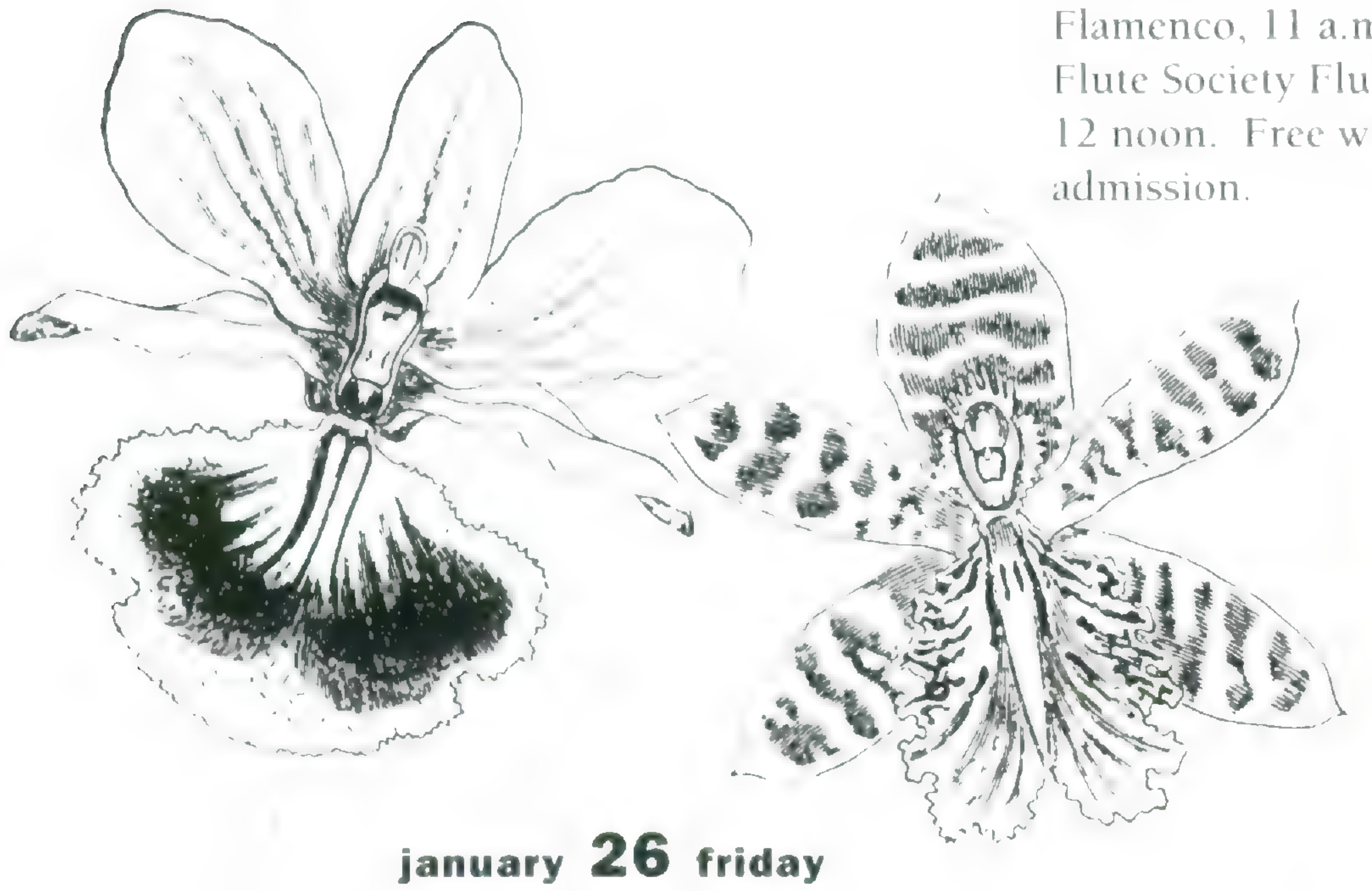
Arts & Education Weekend

Ridgway Center. The Garden is participating in this metropolitan-wide event featuring more than 100 concerts, exhibits, readings, and performances. St. Louis Camera Club Presentation, 10 a.m. and 1 p.m.; Viva Flamenco, 11 a.m. and 2 p.m.; Flute Society Flute Ensemble, 12 noon. Free with Garden admission.

february 18 sunday

Celebrate the Gospel VI

3 p.m., Shoenberg Auditorium. The Garden presents the sixth annual concert in honor of Black History Month, with performances by some of the finest Gospel singing groups from the St. Louis area. Seating is on a first-come, first served basis; free with Garden admission.



january 26 friday

Members' Preview: 1996 Orchid Show

5 to 8 p.m., Ridgway Center. Come get the first look at mid-winter's most colorful display! Entertainment, cash bar. Dinner buffet will be available for $10.95 per person in the Gardenview Restaurant, no reservations. Garden Gate Shop will offer 20% discount on all orchids and orchid merchandise. Preview is free, for members only.

january 25 — march 15

Robert Glenn Ketchum: "The Legacy of Wildness"

9 a.m. to 5 p.m., Monsanto Hall, Ridgway Center. A major 25-year retrospective by one of America's greatest contemporary photographers and leading environmentalists. See page 3. Free with Garden admission.

february 24 saturday

Wylie and the Hairy Man

Live family theater performance by the Vaughn Cultural Center, in honor of Black History Month. Seating in Shoenberg Auditorium is on a first-come, first served basis; free with Garden admission. For information on performance times, call 577-5125 or 577-9400.

february 28 wednesday

Special Trip Preview: "California Redwoods and the High Sierras"

7 p.m., Garden Room, Ridgway Center. A slide presentation previews the Garden's natural history tour of Northern California, coming up June 14-24, 1996. All those interested in taking the tour are welcome; see page 16. Free admission.

Displays at the Kemper Center for Home Gardening

January —

Orchids; Soil Testing and Fertilizers; Composting

February —

Herb Gardening; Composting; Hot Beds & Cold Frames

every day

Free Walking Tours

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a fascinating tour of the Garden. Free with regular admission.

Winter Tram Schedule

The trams that tour the Garden grounds will operate on a reduced schedule from November 1 through the end of February. Trams will leave the Ridgway Center at 10 a.m., 10:30 a.m., 2 p.m., and 2:30 p.m.

24-Hour Information

Call GardenLine: 577-9400

24-hour recorded information about Garden events, hours, admission and directions. Outside area code 314, call 1-800-642-8842 toll free.

wednesdays & saturdays

Garden Walkers' Breakfast

7 a.m., grounds. In cooperation with the American Heart Association, the grounds open early every Wednesday and Saturday morning to encourage fitness walking. Greenhouses open at 9 a.m. Breakfast is available for purchase in the Gardenview Restaurant, 7 to 10:30 a.m.

Members' Days

january 23 & 24

tuesday & wednesday

"Oases in the City: Restoring New York's Public Gardens"

January 23 at 7 p.m.; January 24 at 11 a.m. Shoenberg Auditorium. A lecture by Lyden B. Miller, professional designer of Central Park's Conservatory Garden, Battery Park, Bryant Park, and display gardens at The New York Botanical Garden, the New York Public Library, and the Central Park Zoo. Seating is on a first-come, first-served basis. Free, for members only.

february 15 thursday

"A Slide Tour of Outstanding American Gardens"

1 p.m., Shoenberg Auditorium. Brian Ward, retired horticulture supervisor at the Garden, presents a delightful tour of some of America's premier gardens. Seating is on a first-come, first-served basis. Free, for members only.

GARDEN GATE SHOP

Pre-Inventory Sale

Friday, Saturday, and Sunday

January 5, 6, and 7, 1996

Be sure not to miss this opportunity! Garden members take a special 15 percent discount on the already reduced prices.

Orchid Sale

January 27 – February 25

To celebrate the Garden's popular annual Orchid Show, the Shop is featuring beautiful exotic orchids for sale with a 20 percent discount. Also included at the special discount are orchid potting mixes, fertilizers, wire supports, and other orchid merchandise. And be sure to visit the Orchid Sale during the premiere and preview parties for the Orchid Show.

Valentine's Day

The Shop will offer a lovely selection of blooming plants, keepsake books, Valentine cards, and gifts — one is certain to be just right on February 14 for your special Valentine.

February is a great time to come see the Shop's wonderful selection of colorful blooming plants — just the ticket out of the mid-winter blahs.

Members' Days Are Special

January 23 & 24

Members receive an additional five percent discount on all containers, ready-to-wear, indoor bulbs, and landscaping books.

February 15

Members receive an additional five percent discount on all perennials books, seeds, seed kits, and blooming plants.

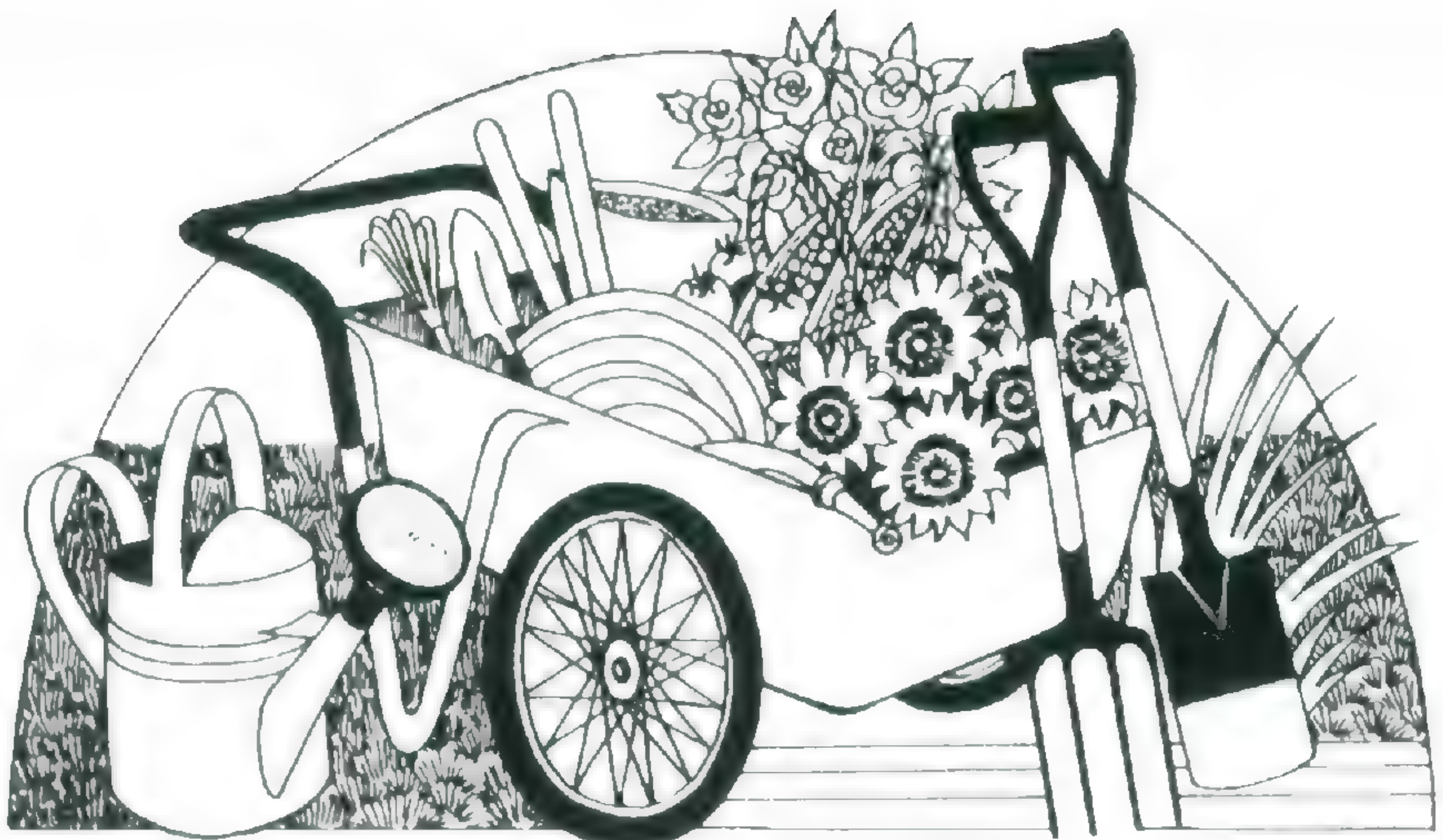
A Cool New Game for Kids

Missouri Department of Conservation introduces "Habitactics" on CD-ROM

You may not know a CD-ROM from a floppy disk, but there's probably a child in your family who does. This wonderful new computer game is just the ticket to helping kids understand conservation while having fun.

"Habitactics" is actually two games in one. In the short game, match species to their habitats, with video and sound to make the animals come alive. In the long game, players are challenged to conserve land near an urban area by making a series of choices. With each step, players learn more about animals, plants, and protecting biodiversity.

Habitactics is available in the Shop, in versions for MS-DOS or Macintosh: $15.95.



GARDENEXPO

LAWN & GARDEN 1996

COMING UP IN 1996 — APRIL 26 WEEKEND
FUN, FACTS, AND THE LATEST IDEAS for the home gardener! Come see the new exhibits and outdoor demonstration Gardens at the William T. Kemper Center for Home Gardening, and visit the GardenExpo for displays by dozens of local vendors. Visit with local plant societies, talk with staff horticulturists, and meet nationally recognized gardening experts. Watch for details!

Featuring:

- *Gardeners' Marketplace*
- *Bookstore*
- *Lawn & Garden Stores*
- *Gardening Techniques with Garden staff experts*
- *Master Gardeners*
- *Plant Societies*

and the latest on —

- *Garden Accessories, Tools, & Equipment*
- *Lawn Care*
- *Trees & Shrubs*
- *Flowers & Vegetables*
- *Annuals & Perennials*
- *Indoor Plants*
- *Herbs*

Annual Members' Dues Increased January 1, 1996

Featuring The New "Family & Friends Plus"

DUES for "Regular" level members at the Garden increased from $45 to $50 beginning January 1, 1996. These increases are urgently necessary to help the Garden continue to meet the pressures of inflation and increased demand for services.

Senior memberships, for adults age 65 and over, will remain at $40 per person and will continue to receive the same benefits as a regular membership.

Benefits for a regular membership are:

- Free admission for two adults and children under the age of 18;
- More than 20 invitations during the year to special Garden events including two "members-only" flower show previews, 12 members' days, and four or more major members' events;
- Ten percent discount at the Garden Gate Shop;
- Free subscription to the *Bulletin*;
- Free reciprocal admission at other botanical gardens nationwide;
- Discounts on education classes and facility rentals at the Garden.

"Family & Friends Plus" Membership

MEMBERSHIPS at the former "Contributing" level of $75 will become "Family & Friends Plus" for $100. Family & Friends Plus members will receive all of the benefits of a regular membership, plus free admission to five great Garden events, for up to ten people per event.

Memberships at the "Sustaining" level will increase from $150 to $175 per year. There are increased benefits for higher levels of support.

Here's a Chance to Make New Friends!

The volunteers of the Membership Services Desk are some of the most active at the Garden. Each year they sell hundreds of memberships to the Garden, answer questions, greet visitors, and act as our ambassadors to the thousands of people who walk through the doors of the Ridgway Center each year.

Volunteers are urgently needed for this rewarding activity. The schedule is flexible, the benefits are many, and you get to meet lots of wonderful people. Plus, you get first look at new items in the Garden Gate Shop!

To join this group of volunteers, please call Jean Crowder at 878-1252.

New Combined Ticket Goes on Sale in March

Garden members enjoy free admission to the Garden and Tower Grove House, plus free tram rides on Members' Days. However, visitors coming for the day may be interested in the new Combined Ticket.

Beginning this spring, the Garden will sell tickets to Tower Grove House and the trams at the Ridgway Center Ticket Counter. Tickets will also continue to be sold at their point of use.

In addition, the Ticket Counter will begin selling a new Combined Ticket that will include Garden admission, admission to Tower Grove House, and a tram ticket, all at a discount from the cost of buying the tickets separately. Sales of the Combined Tickets will end in early afternoon so that all purchasers will be able to use their tickets that day. Combined Tickets may not be available during some special Garden events.

MEMBERS' TRAVEL PROGRAM

Coming in Fall 1996 — "The Gardens of China"

The Missouri Botanical Garden is sponsoring a very special members' tour of "The Gardens of China" in early fall. For itinerary information, please call Brenda Banjak in the Membership Office at 577-9517.

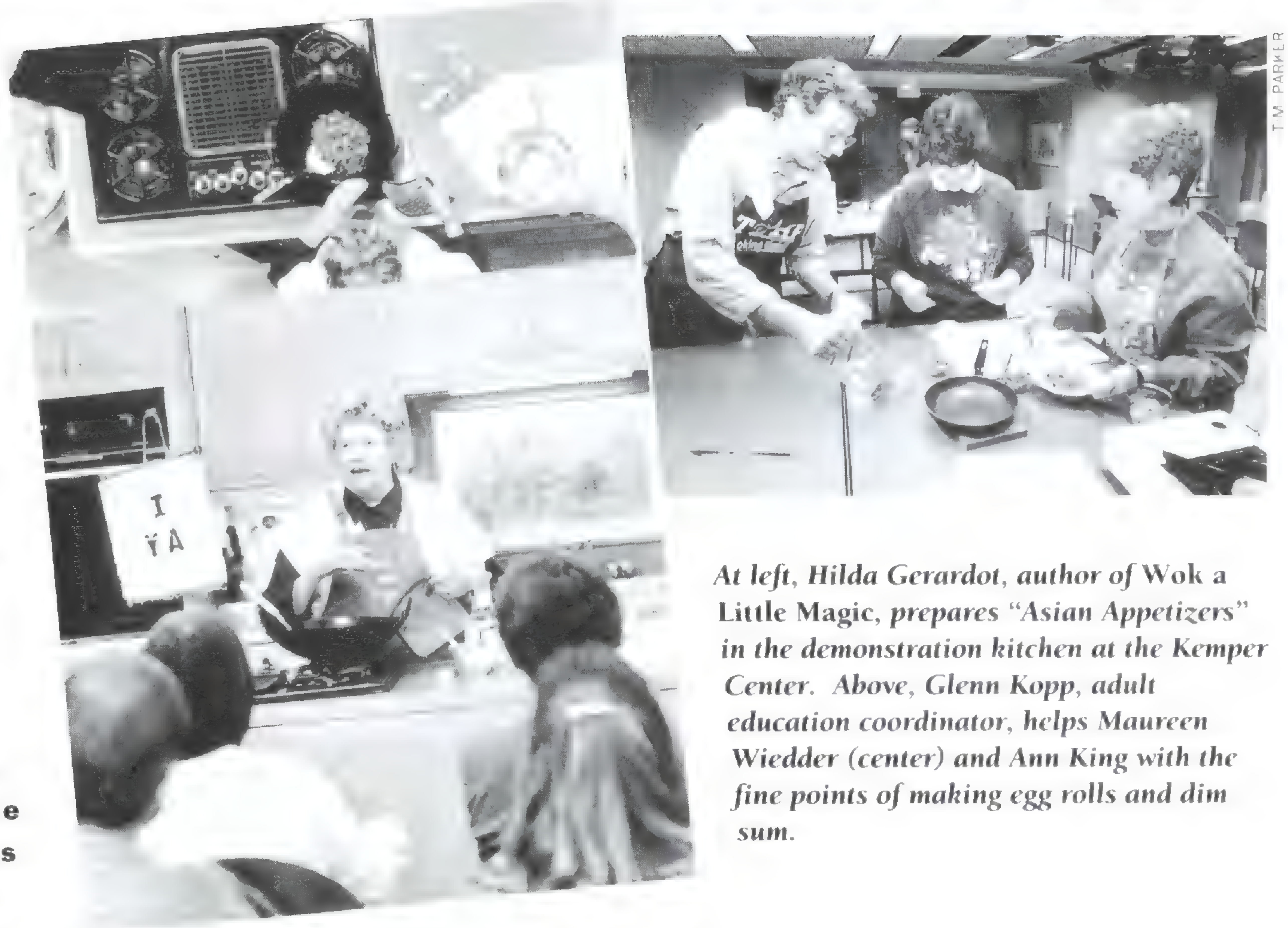
A Special Thank You

Special thanks to Wehrenberg Theatres for their in-kind support of the "Best of Missouri" Market held in October.

ADULT EDUCATION PROGRAMS

A Wok on the Wild Side

Cooking classes at the Kemper Center are a hot topic! The classes offer enthusiastic students a chance to learn expert skills from professional cooks. Discover various ethnic cuisines, from Indian to Chinese to Vietnamese to Thai. Study with noted St. Louis chefs, try New Orleans style seafood, or experiment with holiday pastries. Basic courses include baking, bread making, soups and stocks, and the arts of sauce making and cake decorating, to name just a few. Classes include demonstrations by the experts, plus opportunities for students to practice their new skills. Watch for your Spring 1995 Adult Education Courses brochure, which will be mailed to all members early in February. Courses fill up rapidly, so register early!


T.M. PARKER

At left, Hilda Gerardot, author of Wok a Little Magic, *prepares "Asian Appetizers" in the demonstration kitchen at the Kemper Center. Above, Glenn Kopp, adult education coordinator, helps Maureen Wiedder (center) and Ann King with the fine points of making egg rolls and dim sum.*

TOWER GROVE HOUSE

Thank You, Holiday Decorators

The splendor of the Victorian holiday decorations at Tower Grove House is the result of hours of hard work by volunteers. Our sincere thanks to all for your creativity and dedication, which made the holiday season joyous for everyone who visited Tower Grove House:

The Missouri Botanical Garden Members' Board
The St. Louis Herb Society
Tower Grove House Historical Committee
Southwoods Garden Club
Four Winds Garden Club
Twenty-Five Gardeners of Kirkwood
Webster Groves Garden Club #4
Tower Grove House Staff and Volunteers
Botanicals on the Park

EDUCATION AT SHAW ARBORETUM

New Programs and Projects

CAROL DAVIT

Jan Oberkramer, second from right, instructs a class at the Gateway Middle School's "outdoor classroom"pond habitat.

Gateway Middle School Aquatic Ecology Program

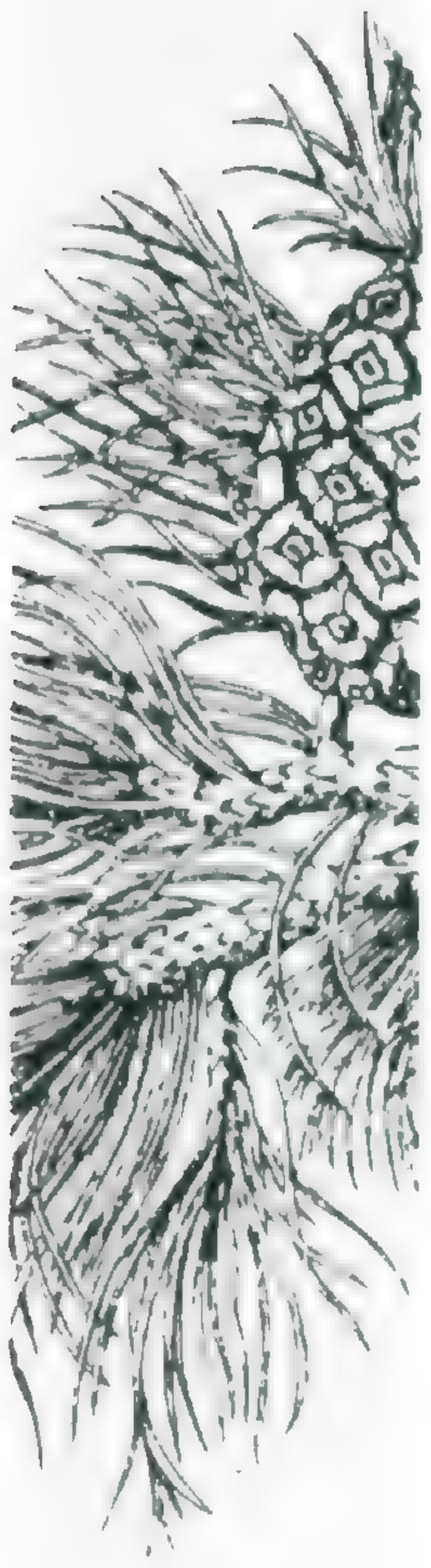
Arboretum education staffers Lydia Toth, Miriam Krone, and Jan Oberkramer are working with sixth, seventh, and eighth grade students on an aquatic ecology curriculum at the Gateway Middle School. Gateway's campus has an artificial stream and pond, complete with aquatic plants, built as an outdoor facility for teaching science. With help from their teachers and the Arboretum staff, students study the interactions of plants and animals in an aquatic ecosystem, chemical and geological factors, and the interactions between the two.

Teacher Workshops

At the Arboretum, the demand for educational programs far exceeds what the staff can supply. Teacher workshops train teachers to use the Arboretum on their own, including how to lead nature hikes and use the self-guided interpretive trail. Arboretum educators also provide teachers with ideas for pre-trip and post-trip activities.

Scout Workshops

The Arboretum staff also receives many requests for tours from Scout leaders . Because troops often meet on Saturdays and on weekends, the staff cannot accomodate many of these requests. A workshop for Girl Scout leaders, similar to the teacher training sessions, was held this fall, and a workshop is planned for Cub Scout leaders.



California Redwoods and the High Sierras

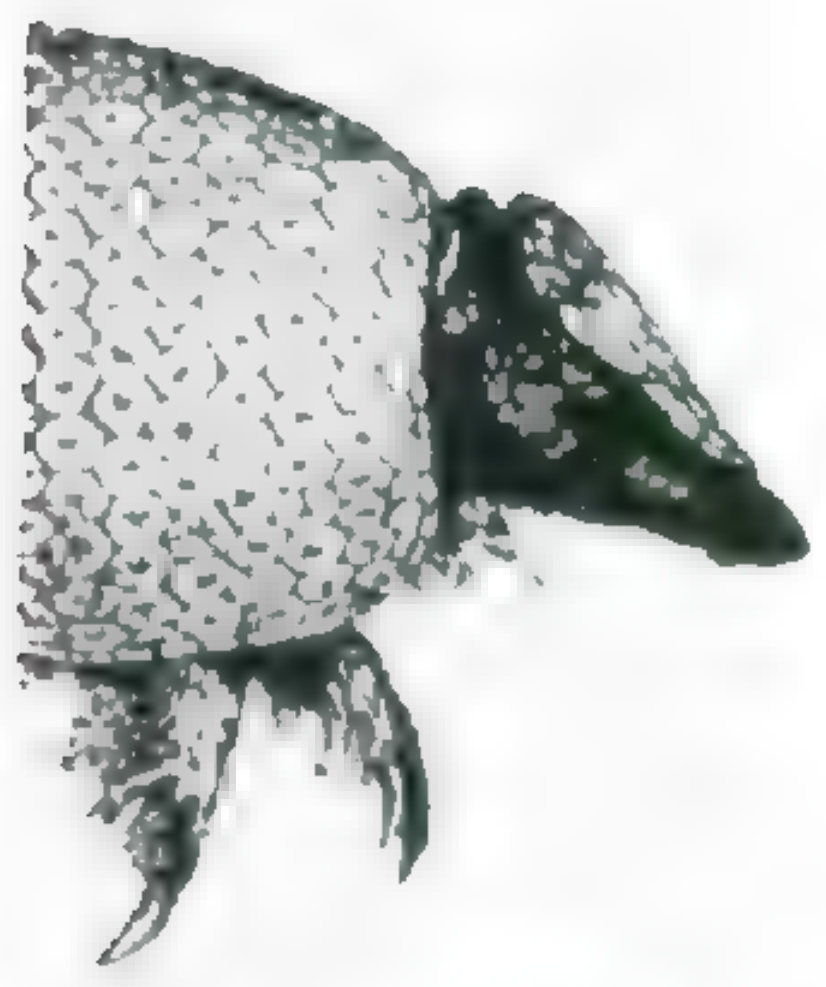
June 14 — 24, 1996

Special Trip Preview:

Wednesday, February 28

7 p.m., Ridgway Center

Giant redwoods, tiny pygmy cypress trees, coastal sand dunes at sunset, volcanic peaks in the Cascade Range — northern California offers some of the most exciting scenery and diverse natural wonders in North America. Visit a private garden overlooking San Francisco Bay; the giant sequoias of Muir Woods; historic Mendocino; Lassen Volcanic National Park; Lake Tahoe, and other thrilling locales.



South Africa: A Natural History Adventure

September 11 — 26, 1996

Special Trip Preview:

Tuesday, February 6

7 p.m., Ridgway Center

From its spectacular coast to its wide plains filled with herds of animals, South Africa is one of the most beautiful and diverse countries in the world. Visit the wild animals of Kruger National Park; ascend to the top of Table Mountain by aerial tramway; explore the wine country settled by 17th century French Huguenots; and more. Extension tours to Botswana, Victoria Falls, and the Namibian Desert are available.

For information on both tours, call the Education Division, (314) 577-9506, or Aventure Travel, (314) 863-7474.

An Amazon Adventure

PINK DOLPHINS and colorful toucans were just two highlights of our seven-day exploration last July of the Amazon, largest river system in the world. Eight people joined members of the Garden's education staff as we traveled by plane, boat, and dugout canoe to visit the remote rain forest of Peru.

Our first stop was the Amazon Center for Environmental Education and Research (ACEER), located on the edge of the Amazon Biosphere Reserve. This 250,000-acres of uninhabited primary rain forest was studied extensively by the late Garden researcher Dr. Alwyn Gentry.

A thrilling feature of ACEER is the aerial walkway suspended 118 feet above the forest floor, which provides a spectacular view of the rain forest canopy that few people have ever seen. We caught glimpses of colorful canopy birds including toucans, parrots, and tanagers, and watched families of pygmy marmosets foraging among the branches.

On our hikes through the forest we saw leafcutter ants and magnificent blue morpho butterflies. At a blackwater lake, one of the most unusual habitats in the Amazon Basin, we saw giant *Victoria* water lilies, just like the ones in the pools in front of the Climatron. And on night hikes and evening boat rides, we had a chance to observe nocturnal creatures of the rain forest.

After three days at ACEER, we moved to the Explorama Lodge, a rustic retreat nestled among the immense trees of the rain forest. Here we watched quietly from a gently rocking boat while four pink freshwater dolphins cavorted in the shallows as the sun set over the Amazon.

— Lydia Toth, instructional coordinator, Shaw Arboretum

Top: Birdwatching in the rain forest. Bottom: A piranha fisherman on the Amazon.

Wildflowers of Western Australia

LAST SEPTEMBER I was lucky enough to lead a group of 14 on a nature-lover's trip of a lifetime, to see the extraordinary wildflowers and wildlife of the land "down under."

Australia harbors an amazing array of living things that are found nowhere else on earth. We enjoyed spectacular vistas of colorful wildflowers, including many we knew only from books or anecdotes. Rare red and yellow wreath flowers blooming in the sand, dozens of migrating humpback whales swimming close to shore, red and grey kangaroos, emus, parrots, cockatoos, and other exotic birds are just some of the wonderful living things we saw in the wild.

continued on next page

Sue Ann Schaefer of Columbia, Missouri, and Garden Guide Maurita Stueck (right) examine a eucalyptus in a park in Western Australia.

AUSTRALIA continued

From the Royal Botanic Garden and magnificent harbor at Sydney, to the famed Blue Mountains, to the 19th century mining towns of the Outback, we enjoyed some of the most thrilling sights of Australia. Southeast of Perth we visited forests of karri eucalpyptus, the third-tallest flowering plant trees known to exist. In the Stirling Mountains, where 80 percent of the species are endemic, we were treated to the sight of the beautiful bright red flowers of *Bankia coccinea* and the amazing Stirling Range bellflowers.

All in all, we agreed that our wildflower tour was a spectacular introduction to the extraordinary diversity of plants and animals of the island continent.

— *Larry DeBuhr, Ph.D., MBG director of education*

Charlotte M. Taylor, Ph.D., is the Garden botanist working with the Flora of Chile project. Shown here are Dr. Taylor's photographs of the Andes (top) and *Copiapoa* cacti (bottom).

Flora of Chile Publishes Volume One

THE FIRST OF SIX PROJECTED VOLUMES of the *New Flora of Chile* was published in August by the University of Concepción Press in Concepción, Chile. This 350-page volume represents more than 15 years of work by the staff of the Botany Department of the University of Concepción and their international collaborators, including the Garden.

Volume One contains taxonomic treatments of the ferns and gymnosperms, including illustrations and distribution maps, as well as introductory chapters covering the history of botanical work in Chile, the evolution of its flora, and the geography and vegetation of this spectacular and geographically complex country.

Chile's native flora is a highly unusual and interesting one. Found here are many species thought to have evolved relatively recently, as the high Andes rose from the flat plains of southern South America and the hyper-arid Atacama desert was formed, as well as plants that are thought to be surviving relicts from the ancient flora that once grew in Antarctica when it had a balmy climate and lush vegetation. Chile is home to horticultural gems such as the popular ornamental *Escallonia* and innumerable cacti, and to wild relatives of important crops including potatoes, tomatoes, and strawberries.

The *New Flora of Chile* is the product of a truly international collaboration. The project is based at the Department of Botany of the University of Concepción and has advanced due to the active participation of researchers from the Missouri Botanical Garden, Ohio State University, the University of Munich, Germany, Reading University in England, the Royal Botanic Garden of Madrid, and other institutions including, most recently, the Los Angeles County Museum. All of these institutions have provided funding for the project, as have the National Science Foundation of the U.S., the Andrew W. Mellon Foundation, and Germany's D.A.A.D.

— *Charlotte Taylor, Ph.D., MBG assistant curator*

Raven Is Honored by University Extension

Dr. Peter H. Raven received the Gordon Warren University Extension Land-Grant Award at the University Outreach and Extension's annual conference on September 11, 1995, in Columbia, Missouri. Raven was honored for his efforts to recognize and enhance the University as a community resource.

Ronald J. Turner, vice president and director of University Outreach and Extension for the University of Missouri System, recognized Dr. Raven for his leadership in many efforts to share knowledge and research, including a partnership between the Garden's William T. Kemper Center for Home Gardening and University Extension. Garden staff and Extension educators work together to conduct classes for 2,000 people annually, answer 30,000 telephone questions on horticulture, and serve another 14,000 callers through the HortLine automated telephone service. The partnership also coordinates the activities of 140 Master Gardeners, who donate 8,000 hours a year in community service.

The Garden and University Extension also participate in the Urban Gardening Partnership with Gateway to Gardening, the Missouri Department of Conservation, and the Urban League to promote neighborhood programs in St. Louis. (See page 9.)

The award presented to Dr. Raven is named for Gordon Warren of Richland, Missouri, an exemplary community leader and ardent supporter of the land-grant university system. Mr. Warren is a longtime advocate of applying University research knowledge to help people live better. University Outreach and Extension provides people throughout the state with educational programs and research results from the four campuses of the University of Missouri System and from Lincoln University.

Peter Raven (center) is shown with Ronald Turner (left) and Gordon Warren.

New Department of Applied Research

James S. Miller, Ph.D., has been appointed head of the new Applied Research Department in the Research Division. Dr. Miller was formerly assistant department head of the Africa and Madagascar Department.

The new department will be responsible for "bioprospecting" projects, which have been underway at the Garden since 1986 under contract to the National Cancer Institute (NCI) and Monsanto Corporation. These projects provide NCI and Monsanto with plant samples for testing for pharmaceutical, anti-fungal, and insecticidal properties.

The Applied Research Department will also be responsible for creating a bank of plant samples for DNA extraction. Unlike plant samples destined to be herbarium specimens, which are heated and dried, samples for DNA extraction are dried with silica gel. This preserves the structure of DNA in the plant cells. The bank of samples is housed in a walking freezer in the Research Division.

In the next few months an index of the samples will be made available on the Internet. This will encourage use of the banked samples by molecular researchers at other institutions.

Center for Plant Conservation Holds Annual Meeting at the Garden

The Center for Plant Conservation (CPC) held its annual meeting at the Garden October 27-29, in combination with its fall board meeting. Representatives from CPC's 25 Participating Institutions throughout the United States and the Board of Trustees attended the weekend meeting, which included presentations on conservation programs nationwide, a field trip to Shaw Arboretum, and business meetings.

The Center, which has its headquarters at the Garden, is the only national organization in the United States dedicated exclusively to preventing the extinction of native plants. The CPC consists of a network of 25 botanical gardens and arboreta that collect and maintain endangered plant species in the National Collection of Endangered Plants.

The CPC estimates that some 4,200 species of plants in the U.S. — roughly one-fifth of the total — are of conservation concern. Of these, nearly 800 species may be within a decade of extinction without concerted human intervention.

Mrs. William H.T. Bush of St. Louis, a member of the Executive Committee of the Board of Trustees for the Center for Plant Conservation, hosted a dinner for all participants during the conference. Patricia Bush is a leader in establishing the CPC's Plant Conservation Fund, an endowment of more than $2 million dedicated exclusively to supporting the work of the Center and its Participating Institutions.

NSF Grant for Study of Tropical Forest Mosses

The Garden has been awarded a $150,000 continuing grant by the National Science Foundation (NSF) for a bryological systematics program under the direction of Dr. Robert E. Magill and Dr. Bruce H. Allen of the Department of Floristics.

"The award will fund a five-year training program for graduate and post-doctoral students," Magill explained. "The program will also produce a monograph of the Pilotrichelloideae of the Meteoriaceae, a large and unusual group of mosses known primarily from tropical forest regions." The project is called "PEET: Taxonomic Monography of Meteoriaceae Mosses."

Parts of the study will be done in collaboration with the biology departments of Washington University and the University of Missouri – St. Louis.

Dr. Allen said, "In addition to contributing to an important scientific study, the students will be given a unique insight into the methodology of both modern and classical systematics. As the number of scientists studying the lower plants decreases, this program will provide these students the tools needed to expand their future research efforts and continue research on bryophytes, an important element in our vanishing tropical forests."

Garden Receives Operating Support from IMS

In September the Garden received a $112,500 General Operating Support grant from the Institute of Museum Services (IMS) for 1995-96. There were 1,070 applications for the 27 awards made this year by the IMS, a federal agency.

Diane B. Frankel, director of IMS, said, "Since 1978 IMS General Operating Support has taken a substantial role in encouraging the best in museum practice. The grant provides national recognition mor museums that have the highest approval of their peers. It is a stamp of achievement that sparks vital public-private partnerships. Museums will use these awards to do what they do best: educate, fascinate, inspire, illuminate, inform, enhance, and enrich the lives of hundreds of thousands of visitors each year."

CPC Co-Sponsors International Conservation Congress in Australia

This fall, the Center for Plant Conservation (CPC) co-sponsored the 4th International Botanic Gardens Conservation Congress in Perth, Western Australia. Brien Meilleur, Ph.D., president and executive director of CPC, participated in the Congress.

The meeting brought together a major international network of botanical gardens focused on the conservation of plants worldwide. Since the first Congress was held in 1985, the role of botanical gardens in biodiversity conservation has increased dramatically to include new conservation techniques and innovative programs. Many more institutions are maintaining living collections of threatened species, and environmental education for the public has become a major priority.

NEWS FROM THE LIBRARY

Rare Books Pay the Rent

The Garden has added an important acquisition to its rare book collection, thanks to a generous gift from Mr. and Mrs. Robert W. Eltz of Chesterfield. The donation was a two-volume set of the 19th century *Flora de Filipinas* by Manuel Blanco, which Mrs. Eltz's father accepted in lieu of a cash rent payment during the Depression.

The gift is a rare example of two volumes from the 1877-83 Grand Edition of the work, still in their original binding of red fabric richly ornamented in black and gold. Volume 1 contains the text by Father Blanco describing over 1200 species and their medical properties. The second volume contains a portfolio of 253 fine lithographed plates in color.

—Hu Walsh, library volunteer

Have You Seen — *The Pettus Arbor*

One of the loveliest spots in the Garden is the arbor in the Shoenberg Temperate House. This cool, shady retreat, the gift of Stella Cartwright Pettus in memory of her husband Charles Parsons Pettus, Jr., was dedicated by Mrs. Pettus "To the Glory of God."

On the lower level of the Temperate House, take the walkway outside the walled Moorish garden to pass beneath the long, shady arbor. Visitors pause there for meditation and to enjoy the rich variety of foliage and flowers on the ornamental vines. This winter, watch for the pure white flowers of *Clematis armandii*, which perfumes the whole conservatory when it reaches its peak of bloom in late February. The flowers cover large portions of the east and south end of the arbor and perch above the dense foliage.

***Akebia trifoliata* also blooms on the arbor in late February. The green male flowers occur at the apex of the raceme, while the purple female flowers are placed lower. Their beauty is subtle and unique.**

In March, watch for *Stauntonia hexaphylla* to set forth its lovely white flowers. This plant is female; it blooms above the foliage and provides an airy elegance to this rarely grown and unusual species. In summer, the arbor truly comes into its own as a cool, shady respite from the hot days outside. This summer the arbor will be fragrant with yellow and pink honeysuckle, *Loniceria* x *heckrottii* 'Goldflame'. In August and September, the deep reddish-purple blooms of *Millettia reticulta* fill the conservatory with scent. This unusual wisteria-like species with sinouous woody stems produces cascades of fragrant blossoms over the sides of the arbor.

There is always something colorful and interesting to see growing on the Pettus Arbor. Stop by for a restful respite on your next visit.

CLIFF WILLIS

Have You Noticed — *Dwarf Conifers*

When the winter landscape is barren and grey, the conifers truly come into their own. One spectacular exhibit at the Garden is the Dwarf Conifer Garden flanking the path just north of the Climatron, with evergreens in all shapes, colors, and textures.

On the west side of the path, framed by the 1982 Audrey Heckman Rock Garden, is the George E. Kassabaum Dwarf Conifer Garden, established in 1984 as a memorial gift by Mr. Kassabaum's family. Kassabaum was a founder and president of Hellmuth, Obata & Kassabaum, Inc., the internationally renowned St. Louis architecture firm that designed the Ridgway Center. The conifer collection is extended with a bed on the east side of the path in the Margaret C. and William G. Heckmann Bulb Garden, established in 1990.

Our wonderful collection includes dozens of the vast selection of pines, cedars, and spruces available for home landscapes. The foliage comes in a tapestry of striking colors ranging from green to blue to yellow, plum, and gold. Some change color with the season or intensify in hue. The conifers grow in an extraordinary variety of habits, from low shrubs to tall columns to graceful cascading shapes. Texture adds another dimension of beauty to our display, with the feathery foliage of some plants making a sharp contrast to the stiff, coarse needles of others.

Dwarf conifers are ideal for residential landscapes because they are slow growing and rarely need pruning. Placed correctly, they never outgrow their space, unlike their larger relatives, which can quickly overpower doors and windows with a wall of greenery. The fertilizer needs of dwarf plants are low, and mulching with compost or shredded leaves once a year is usually sufficient. Once the plants are established, their water requirements are minimal, but they do continue to need moisture in winter and should go into the cold months with an adequate reserve supply.

Some of these 'dwarfs' are not tiny. The term is relative to the size of the parent plants, which may be huge. Many dwarfs are propagated from slow growing or naturally diminutive plants, or from "witches' brooms" — abnormal areas of tight congested growth on an otherwie normal tree or shrub. Propagated assexually, dwarf selections maintain their small stature, giving rise to lovely landscape specimens. Others are naturally low growing.

Many of the plants in our collection are unusual in color and shape, but none are considered rare. Many local nurseries now handle dwarf conifers and will carry more as the demand increases. Take a moment this winter to enjoy this striking display and plan some additions to your home landscape.

—June Hutson, Aurelia Schlapp
Curator of Perennial Plants

On October 11, 1995, the Board of Trustees elected Jefferson L. Miller and William K. Y. Tao as Emeritus Trustees of the Garden. "We are delighted to welcome Jeff Miller and Bill Tao to the Board," said Peter Raven. "Their wisdom and experience, and their enthusiasm for the Garden, will make a wonderful contribution to our efforts."

William K. Y. Tao

WILLIAM TAO and his wife Anne have worked closely with the Garden on a variety of projects, most recently as honorary co-chairs of the benefit party "Year of the Chinese Garden." Mr. and Mrs. Tao are generous supporters of the Flora of China project, and Mr. Tao serves as chair of the Flora of China Advisory Committee. Mrs. Tao is a former member of the Garden Members' Board.

William Tao started his private engineering practice in St. Louis in 1956, while teaching at Washington University. In 1957 he founded William Tao & Associates Consulting Engineers, which is internationally recognized as a leader in innovative engineering and building systems design. In 1989 Mr. Tao transferred the firm to his employees. Today he serves as a consultant for business developments and is completing a college textbook and professional reference book on building mechanical and electrical systems.

Mr. Tao came to the United States from mainland China in 1947 and earned a master of science degree in mechanical engineering at Washington University. More than 30 of his technical articles and papers have been published in national engineering journals; he holds two patents and is a member of numerous professional organizations, boards, and committees.

Mr. Tao is a dedicated supporter of educational and civic organizations in St. Louis. He has served on the Board of Trustees of Washington University since 1978, becoming emeritus in 1990. Since 1993 he has been a board member of the Chancellor's Council of the University of Missouri-St. Louis. At Washington University he has been an affiliate professor of the School of Engineering since 1955 and of the School of Architecture since 1965. He is an emeritus director of Goodwill Industries, a director of the Monday Board of Mark Twain Bank, and a member of the Advisory Council of the United Nations Association of St. Louis.

During his career Mr. Tao has received many professional and civic awards. He has received several awards from Washington University, including the Alumni Achievement Award, the Search Award, and the Engineering Achievement Award. He has also been honored by the Organization of Chinese Americans, the International Institute of St. Louis, the American Consulting Engineers Council, the United Nations Association of St. Louis, and the Missouri Society of Professional Engineers, among many others.

Mr. Tao stated, "I have always been impressed by the Missouri Botanical Garden's leadership in botany in the scientific world, and its cultural and social contributions to the state of Missouri. I am a strong believer that the Flora of China project will provide the database leading to the better understanding of botanical plants and their values in medicine to benefit people in the United States as well as people of the world. I look forward to working with the Board to further advance the goals and achievements of the Garden."

Jefferson L. Miller

JEFFERSON MILLER and his wife Dotty have been strong supporters of the Garden for many years. They take a special interest in the work of Dr. William A. Haber, a Garden researcher based at the Monteverde Cloud Forest Preserve and International Children's Rainforest in Costa Rica.

Mr. Miller founded DDM Outdoors, Inc., in 1972, where he serves as president. A native St. Louisan, he attended St. Louis Country Day School until 1935, when his mother moved to Palm Springs after his father's death. He graduated from Palm Springs High School in 1941 and attended Purdue University before entering the United States Merchant Marine. Upon returning to St. Louis, he attended Washington University before beginning a 32-year career with First National Bank, now Boatmen's Bankshares, Inc.

Mr. Miller is a supporter of community and cultural organizations in St. Louis. He currently serves on the board of the American Youth Foundation and the Episcopal Presbyterian Foundation; he is a past board member of the Missouri Historical Society, Mary Institute and Country Day School, Lindenwood College, Monticello College, and St. Luke's Hospital, where he has served as president. He was a founding member of the Saint Louis Zoo Association, and is active in the Missouri Chapter of The Nature Conservancy.

"I have always admired the Garden's leadership in conservation efforts and scientific research," said Mr. Miller. "The Garden is important to St. Louis and the entire world."

At the annual Henry Shaw Dinner on September 30, 1995, the Garden presented its highest award, the Henry Shaw Medal, to Mr. and Mrs. E. Desmond Lee and to Mrs. Marlina Curry. Mr. and Mrs. Lee, shown above with John K. Wallace, president of the Board of Trustees, were recognized for their outstanding support of science education in St. Louis. Mrs. Curry (below), a teacher for over 20 years in St. Louis schools, was honored for her achievements in teaching science.

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FLOWER SHOW

Orchids

1996 Orchid Show • January 25 — February 25
Orthwein Floral Display Hall • 9 a.m. to 5 p.m.
See page 12 for the Special Members' Preview.

"The Legacy of Wildness" • January 25 — March 15
A 25-Year Retrospective Show • Monsanto Hall
See page 3 for details on one of America's most distinguished photographers and environemtalists.

Ketchum

PHOTOGRAPHS

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Missouri Botanical Garden

MARCH / APRIL
1996

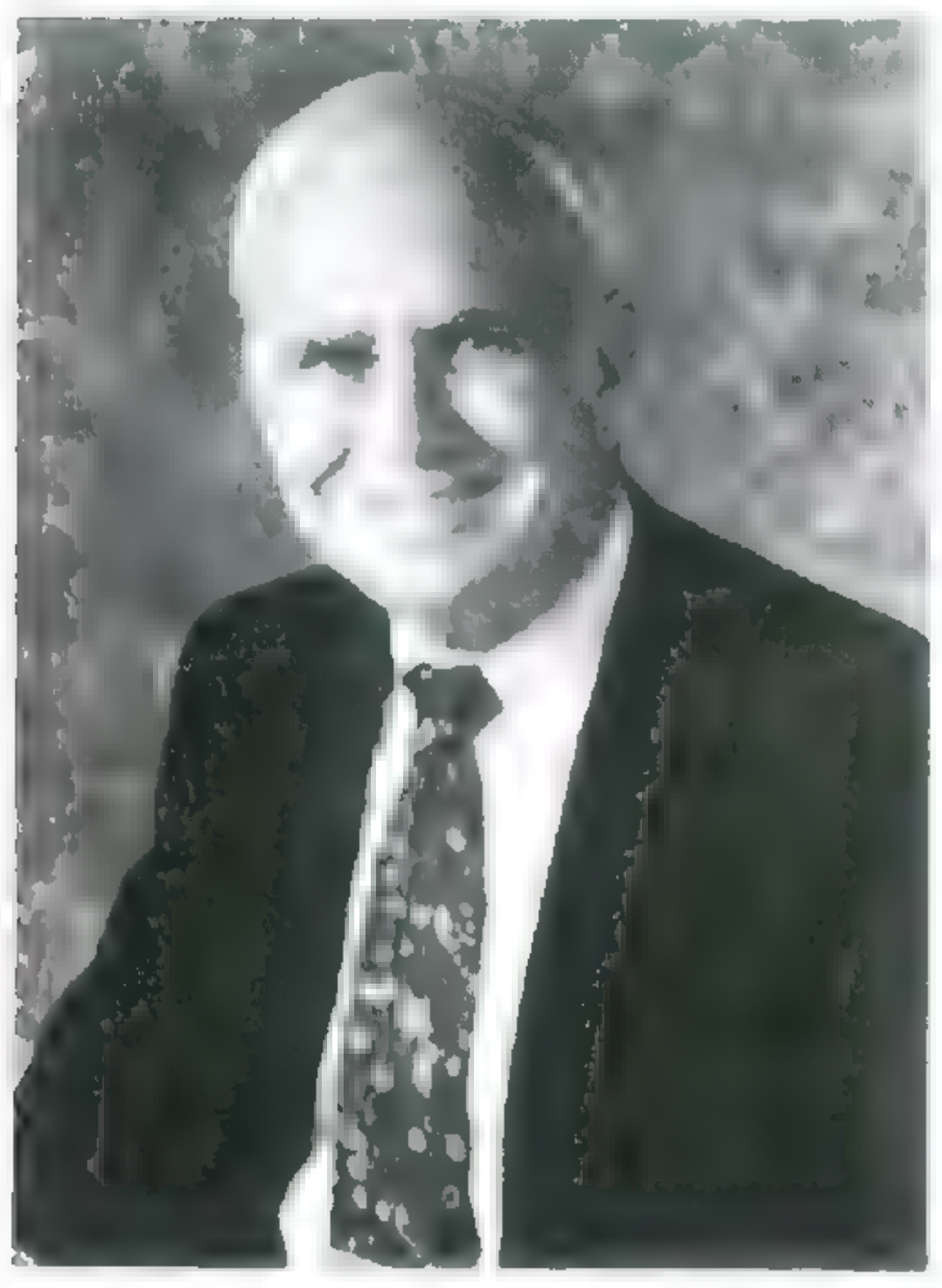
VOLUME LXXXIV
NUMBER TWO

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS AND THEIR ENVIRONMENT, IN ORDER TO PRESERVE AND ENRICH LIFE."

With the colorful view of the Samuels Bulb garden on the cover of this issue, we usher in a new look for the *Bulletin*. Jack Jennings's wonderful photographs have appeared in the annual calendar for many years; now we will be able to enjoy Jack's seasonal views of the Garden six more times each year. We hope you enjoy the *Bulletin*'s new appearance!

Thanks to generous support from the St. Louis community, the Partnership Campaign continues to achieve new milestones. It gives me great pleasure to announce that we have received pledges to name all of the demonstration gardens at the William T. Kemper Center for Home Gardening. The Joseph H. Bascom Manor House at Shaw Arboretum will open to the public on April 5 with a splendid new permanent exhibit prepared in collaboration with the Missouri Department of Conservation (pages 4-5).



The Garden library, to be housed in the new research center, will make our outstanding collection much more accessible to users and incorporates many environmentally sustainable features, described on page 15.

In addition to the goals of the capital campaign, Robert and Dorotha Nelle Kresko and their children have made a magnificent gift of a new formal Victorian garden, to be constructed this year to the east of Tower Grove House. Please see an account of all of the changes occuring in the Historic District on pages 6-7.

Education of children and adults continues to be a vital part of the Garden's mission. The E. Desmond Lee Program provides science outreach classes for underserved St. Louis area schools, described on page 9. On page 15, see how the Enterprise Community Greening Program extends our neighborhood outreach by teaming the Urban Gardening Partnership with Operation Brightside.

April brings another national observance of Earth Day. This year the Garden is proud to be teaming up with the celebration in Tower Grove Park. And at the end of April, don't miss our second annual GardenExpo, just in time for planning your spring garden.

— Peter H. Raven, Director

Former Staff Member Celebrates 100th Birthday

Staff and volunteers at Shaw Arboretum joined the community of Gray Summit for a celebration of Walter Stricker's 100th birthday in January. Mr. Stricker (above, left) joined the staff at the Arboretum in 1933, planting trees and mowing grass. He worked at the Garden for a brief time in the orchid ranges and returned to work part time at the Arboretum in 1958; he worked there two days a week until he retired in 1977.

Mr. Stricker still loves to garden. John Behrer (above, right), director of Shaw Arboretum, said, "Wally didn't think power equipment did the job right. He used a push mower and turned his garden by hand until last year." Mr. Stricker was born on a farm near Gray Summit and has lived in the area all his life; the people of the community have gathered to celebrate his birthday every January for the past ten years.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this *Bulletin* and mail to:

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On the Cover

The Samuels Bulb Garden
in springtime.
Photo by Jack Jennings

Editor

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JACK [illegible]

The demonstration gardens at the William T. Kemper Center for Home Gardening

Naming Gifts for All Gardens

The Partnership Campaign recently announced a significant milestone — the Garden has received pledges to name each of the new demonstration gardens at the William T. Kemper Center for Home Gardening.

"Finding donors to support each of the 23 demonstration gardens was a major goal of the campaign," said Ronald J. Oyer, director of development. "We are very grateful to the individuals and corporations who have made naming gifts for the gardens."

Construction was completed last year on all structural features in the outdoor demonstration area. Ten gardens were planted last year and the rest will be planted this spring.

Demonstration Gardens at the William T. Kemper Center for Home Gardening

Christopher Biraben Butterfly Meadow
Mrs. Jack Jacobs
Boatmen's Family Vegetable Garden
Boatmen's Bancshares, Inc.
Birch Mahaffey Carpenter Butterfly Pavilion
D.J. and Dr. Walter L. Moore, and members of the Carpenter Family
Coinco Summer Plant House
Coin Acceptors, Inc.
Enterprise Rent-A-Car Flower Borders
Enterprise Rent-A-Car
Sam and Marilyn Fox Fruit Garden
The Fox Family
The Fragrance Garden
Anonymous
Lois Whiteside Franklin Flower Trail Garden
Jane Brauer Hunter-MacMillan, Stephen Franklin Brauer, A. John Brauer
Jane and Whitney Harris Secret Garden
Mr. and Mrs. Whitney Harris
Jordan Charitable Foundation Ornamental Shade Garden and Overlook
Mary Ranken Jordan and Ettie A. Jordan Charitable Foundation
Mildred Lane Kemper Terrace Garden
James M. Kemper Family
Lang Family Bird Garden
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Lucy and Stanley Lopata Prairie Garden
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Members' Board & Garden Members
Mercantile Bank City Garden
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Mrs. Joseph F. Ruwitch
Spoehrer Children's Garden
Spoehrer Family Charitable Trust
Cornelia Sunnen Backyard Garden
The Sunnen Foundation
Martha Love Symington Missouri Native Shade Garden
Edward K. Love Conservation Foundation
Union Electric Groundcover Border
Union Electric
Suzanne Stagg Wright Rock Garden
Mr. C. J. Wright

Adjacent Gardens

Ruth Palmer Blanke Boxwood Garden
Mrs. Albert Blanke, Jr.
The Margaret Grigg Nanjing Friendship Garden
Margaret Blanke Grigg

A Capital Year

1995 Campaign Update

The Partnership Campaign raised $27 million as of December 31, 1995. This is 77.3 percent of the campaign's goal of $35 million to be raised by the end of next year.

"The campaign is making excellent progress," said Patty Arnold, development manager. "In 1995 alone we raised $6.5 million, which represents gifts and pledges from several individuals, foundations, and companies. We are tremendously grateful for this wonderful level of support."

MISSOURI BOTANICAL
JUL 11 1996
GARDEN LIBRARY

THE JOSEPH H. BASCOM MANOR HOUSE EXHIBITS

"People on the Land"

> *"From the time my esteemed father-in-law, Mr. Jeffries, first cut the tree and vine away from this good earth, the scenery of Missouri has been wonderfully altered."*
>
> *— Colonel Thomas W.B. Crews, builder of the 1879 Manor House at Shaw Arboretum*

THESE WORDS represent just one view in a changing sequence of attitudes about the land, attitudes held over the centuries by people who have lived there. The new permanent exhibits at Shaw Arboretum portray a stimulating blend of the human history and ecology of eastern Missouri, from the first inhabitants to the present day. The display opens in the Manor House on April 5, a joint educational project of the Garden and the Missouri Department of Conservation.

The Joseph H. Bascom Manor House stands on a hill at the Arboretum with a sweeping view over the Meramec valley. The house has been renovated as a visitor facility, with meticulous attention to authentic 19th century details. The handsome architecture provides a splendid context for the new exhibits, which fill the downstairs rooms, while the second floor of the house and the annex provide offices and visitor facilities.

The late Joseph H. Bascom was a trustee of the Garden. The naming gift for the Manor House renovation was made in his memory by Mrs. Joseph H. Bascom and their son and daughter. Other significant gifts were made by the Gateway Foundation and Lucius B. Morse III, a Garden trustee.

The land where Shaw Arboretum is today has been used by humans since Native Americans first camped and hunted on the banks of the Meramec River thousands of years ago. The Manor House itself stands on the site of a pre-Civil War farmhouse. The new exhibits were designed by Jack Unruh/Design and fabricated by Condit Exhibits, both of Denver, Colorado.

Learning from the Land

Native Americans lived off the land and changed it in subtle ways, but since European settlement began, the ecosystem of the area has been rapidly altered. Non-sustainable farming, logging, and development have consumed natural resources. The exhibits offer thought-provoking insights on environmental issues from people of different eras who have depended on the land for their livelihood.

What This Old House Has Seen

Visitors enter the Manor House through the front door. Spacious rooms on either side of the wide central hall allow visitors to move freely through the displays.

In the front room on the east, old photographs of the Manor House and its residents tell the story, "What This Old House Has Seen." Wall panels show timelines of historic events, and a topographic model shows how the land might have looked before European settlement. The southeast parlor, separated from the front room by a handsome fireplace, contains displays of "The Arboretum Then and Now."

People on the Land

On the west side of the house, two parlors create one large gallery space. Four historical eras are represented: the Native American period, 10,000 B.C. to about 1750 A.D.; early European exploration, 1750 to 1810; major settlement and exploitation, 1810 to 1930; and the current era of "Reaction, Recovery, and Decision," 1930 to 2001.

Sound effects will be heard softly, fading in and out to evoke images of each era: wind in the prairie grasses, birds calling, water trickling over a gravel bar; wagon wheels, rifle shots, axes felling trees; a steam locomotive, a player piano, an early automobile; a chain saw, a busy freeway, a sonic boom.

Handsome display cases of polished wood contain artifacts found at the Arboretum, from stone tools and arrowheads of Native Americans to early farm implements. A large wetlands diorama, complete with dragonflies, bluegill, a muskrat, and cattails, portrays the complexity of wetlands' ecosystems and illustrates how attitudes about their usefulness have changed over time.

CLIFF WILLIS

Above: Virginia K. "Ginny" Wallace, environmental education officer for the Missouri Department of Conservation's Division of Education and Interpretation, admires the original woodwork on the staircase in the main hall of the Bascom Manor House. At right is David Hicks, a full time staff member at the Arboretum who is in charge of the restoration project.

Above, right: Ginny Wallace, John Behrer, director of Shaw Arboretum (center), and David Hicks stand in front of the tall doors between two parlors; the doors slide open to create one large gallery space on the west side of the house. All woodwork has been restored with authentic faux-graining effects.

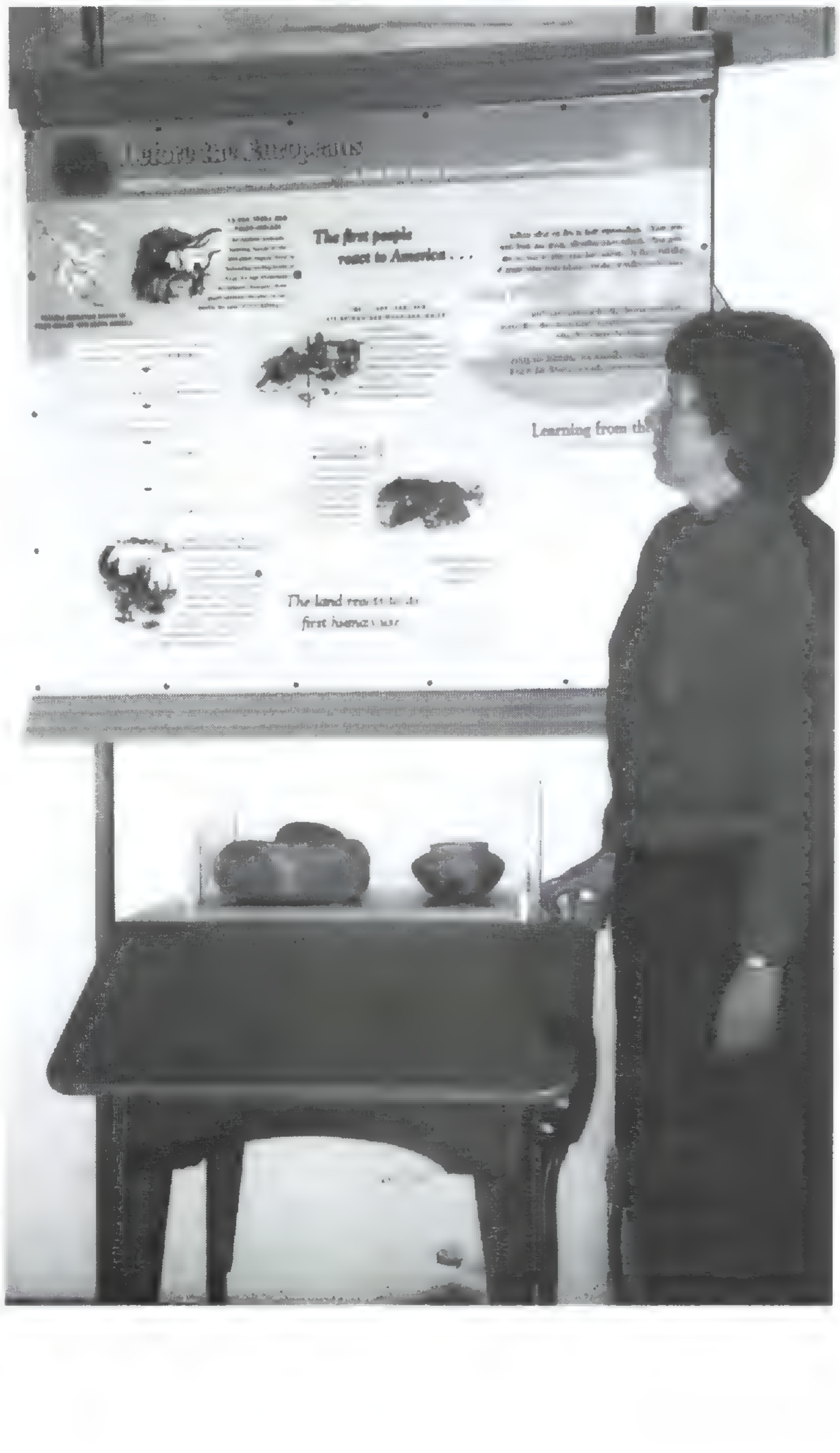
The costs of environmental disruption are carefully considered in wall panels, audio text, and graphics. The effects of destructive land development and wasteful use of natural resources force us to confront the limits on the land's productivity.

Some of the most powerful exhibits are the "Witness Figures," lifesized costumed mannequins of people who have depended on the land throughout the centuries. Each of these characters presents a compelling view of the bond between people and the natural systems that sustain us.

Visitors use audio handsets to listen to stories from a Cahokian woman, a Native American boy, a French trapper, a woman settler from the Carolinas, a former slave sharecropper, a Depression-era farmer's wife, a 1950s farm implement salesman, a 21st century farmer, and a contemporary environmentalist.

A Partnership for Environmental Education

"We are very proud to present this exhibit in partnership with the Department of Conservation," said John Behrer, director of Shaw Arboretum. "The Garden and the Conservation Department share common goals, and 'People on the Land' will help our visitors understand issues that we believe are very important."

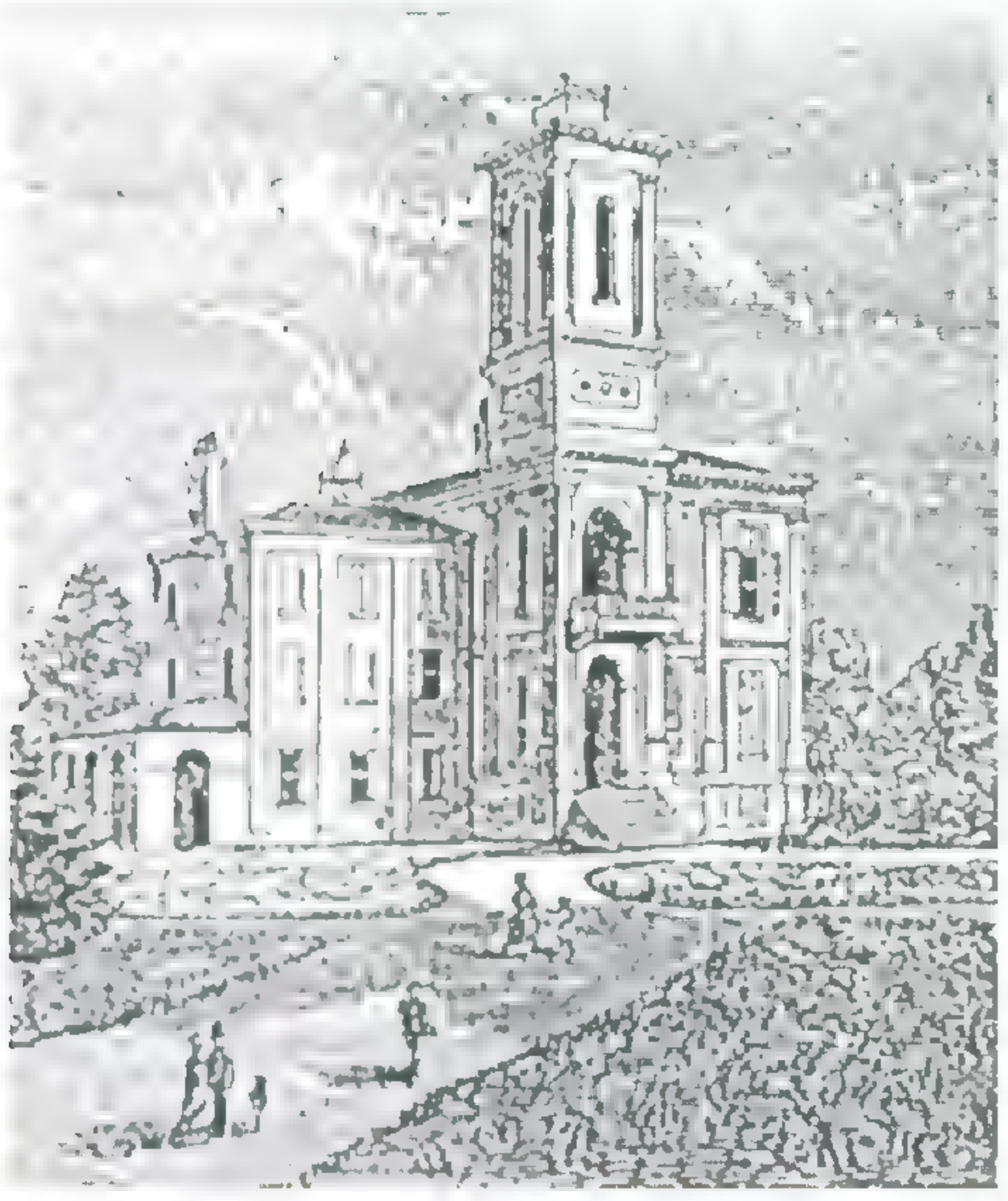

Before the Europeans
The first people react to America . . .
Learning from th
The land reacts to its first humans

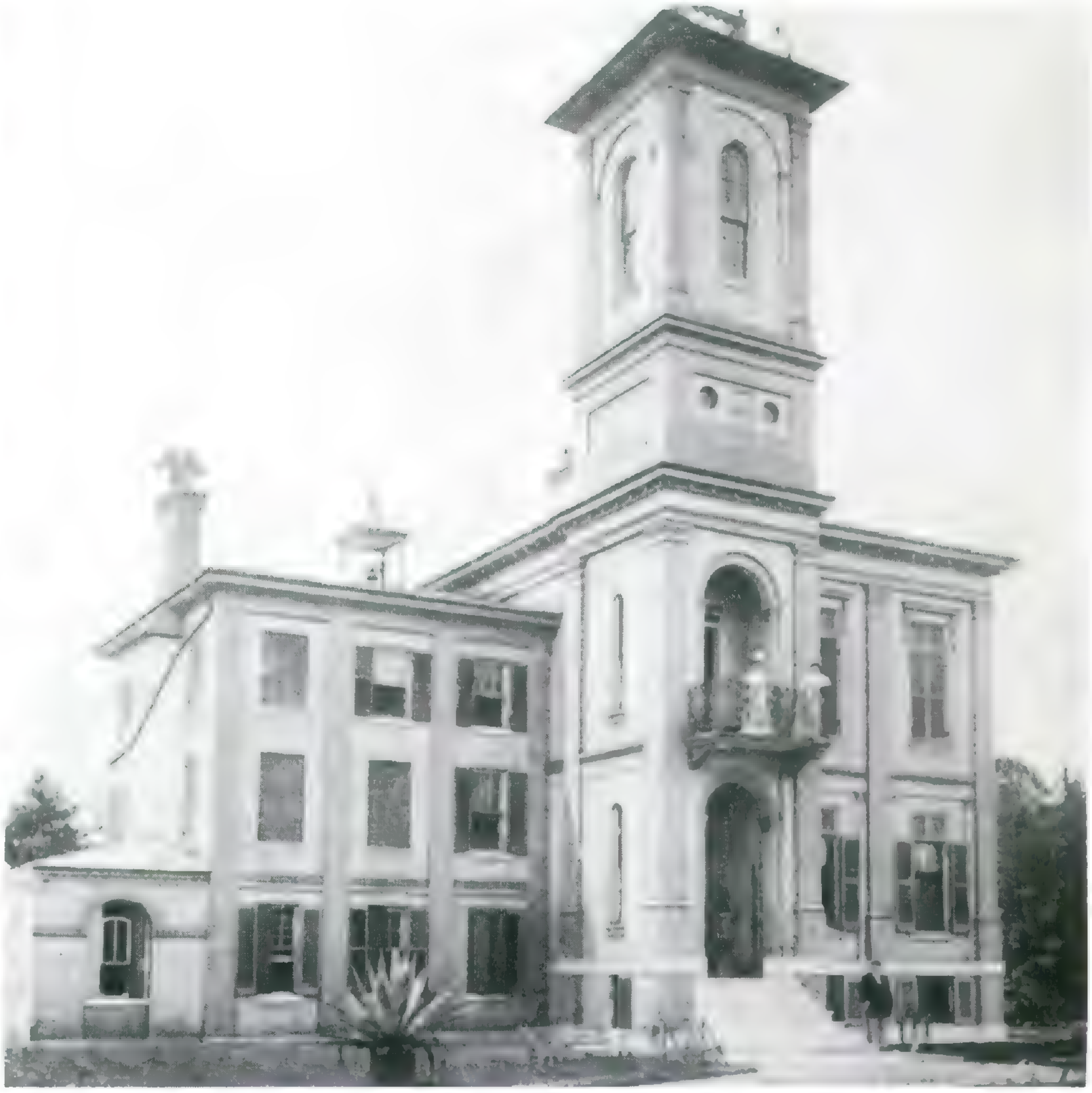
CONDIT EXHIBITS

Left: Lydia Toth, instructional coordinator at Shaw Arboretum, with one of the colorful wall panels. The wooden case below holds Native American artifacts; a telephone handset at the side allows visitors to listen to audio text about the display.

A NEW VICTORIAN GARDEN

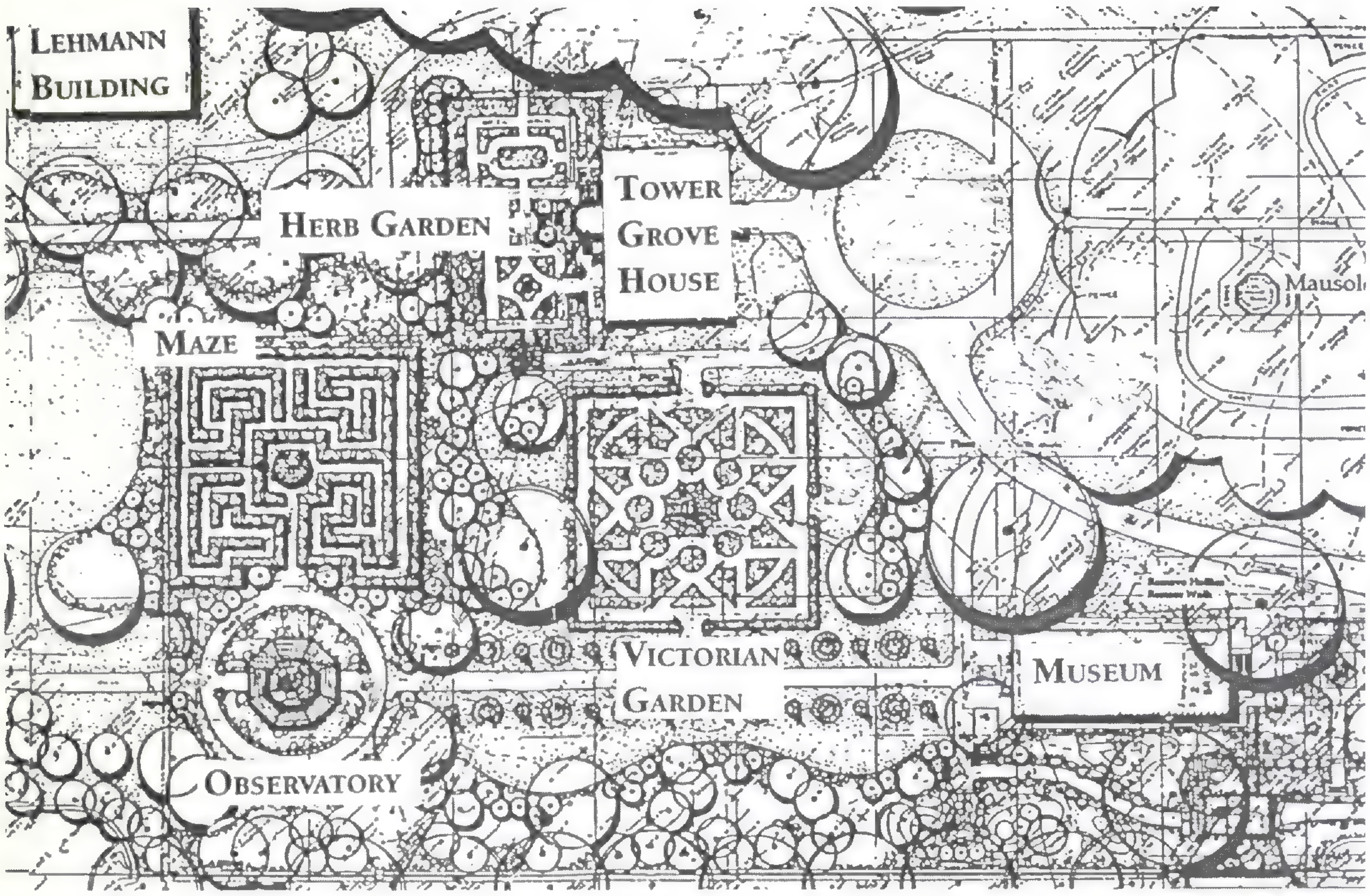
Landscaping the





MISSOURI BOTANICAL GARDEN ARCHIVES

Above: An 1870s engraving of Tower Grove House from the "St. Louis Exporter and Importer."
Right: A photograph of Tower Grove House taken during the 1870s shows how the lawns grew right up to the house, with no foundation plantings. Henry Shaw stands beside the front steps.



ENVIRONMENTAL PLANNING AND DESIGN

At left: A landscape design showing the plan for the new Victorian Garden to be constructed this spring in the Historic District.

Opposite page, top: Henry Shaw had a parterre of elegant planting beds separated by paths in the area where the Climatron water lily pools are today. In the background is the original entrance gate, where Spink Pavilion stands today. Note the stone urns and the statue of Juno that accented the decorative plantings. The new Victorian garden will resemble Shaw's parterre when it is planted in 1997.

Historic District

VISITORS TO THE GARDEN this spring will see extensive landscaping changes in the area near Tower Grove House. All this activity is part of a long-term project to enhance the Historic Area, which extends from the Knolls to the Shoenberg Administration Building and from Tower Grove House to the Museum Building. The area is being relandscaped to reflect the tastes and traditions of the 19th century, when Henry Shaw lived at Tower Grove House.

The first steps in the project were the construction of the Jennie Latzer Kaeser Maze in 1986 and the Piper Observatory in 1995. Henry Shaw built mazes and observatories in both the Garden and Tower Grove Park, and the features recall these structures. Both the Maze and the Observatory were made possible by the generosity of Mr. and Mrs. Vernon W. Piper.

THE AREA IS BEING LANDSCAPED TO REFLECT THE TASTES AND TRADITIONS OF THE 19TH CENTURY, WHEN HENRY SHAW LIVED AT TOWER GROVE HOUSE.

This summer a formal Victorian flower garden will be built on the east side of Tower Grove House, between the Maze and the Museum Building. This splendid new feature, to be constructed this year and planted in 1997, has been made possible by a very generous gift from Robert and Dorotha Kresko and their children, Robert, Timothy, and Anne. Mr. Kresko is a Garden trustee and a former president of the Board.

Henry Shaw had a formal flower garden in the area where the Climatron reflecting pools are today. Shaw's display featured symmetrical planting beds and paths in a large circular pattern, accented by the marble statue of Juno in the center. The magnificent new Victorian Garden will be similar to Henry Shaw's and will be an outstanding example of the height of fashion in England at the time Shaw was planting his gardens.

The new Victorian garden is being designed by Environmental Planning and Design of Pittsburgh in consultation with Brent Elliott, librarian of the Royal Horticultural Society and one of the world's foremost experts on gardens of the Victorian era. Garden members had the opportunity to hear Dr. Elliott lecture on Victorian gardens last spring, when he visited St. Louis to see the site.

Additional changes underway in the Historic District include removal of the foundation plantings around Tower Grove House and the large hollies on the east side of the Museum Building. Photographs of Tower Grove House taken in Shaw's time confirm that the lawn grew up to the base of the foundation, and removal of the shrubbery will allow the historic buildings to be seen as they were in the 19th century. Many of the specimen plants have been saved and replanted elsewhere on the grounds.

Other notable changes include removal of the triangular concrete planter on the west side of the Administration Building. This allows a better view of the historic building, restoration of the ground to its original level, and construction of new, more convenient walkways. The grove of large hollies just north of the 1842 Shaw Townhouse will be preserved, and the area around the Piper Observatory will be landscaped with Victorian-style plantings.

Peter Raven said, "Strengthening the authentic Victorian character of the southeast corner of the Garden provides an important link to our history. Beginning with the opening of the Piper Observatory this year, visitors will be able to enjoy once again the kinds of landscaping that Henry Shaw had in his garden."

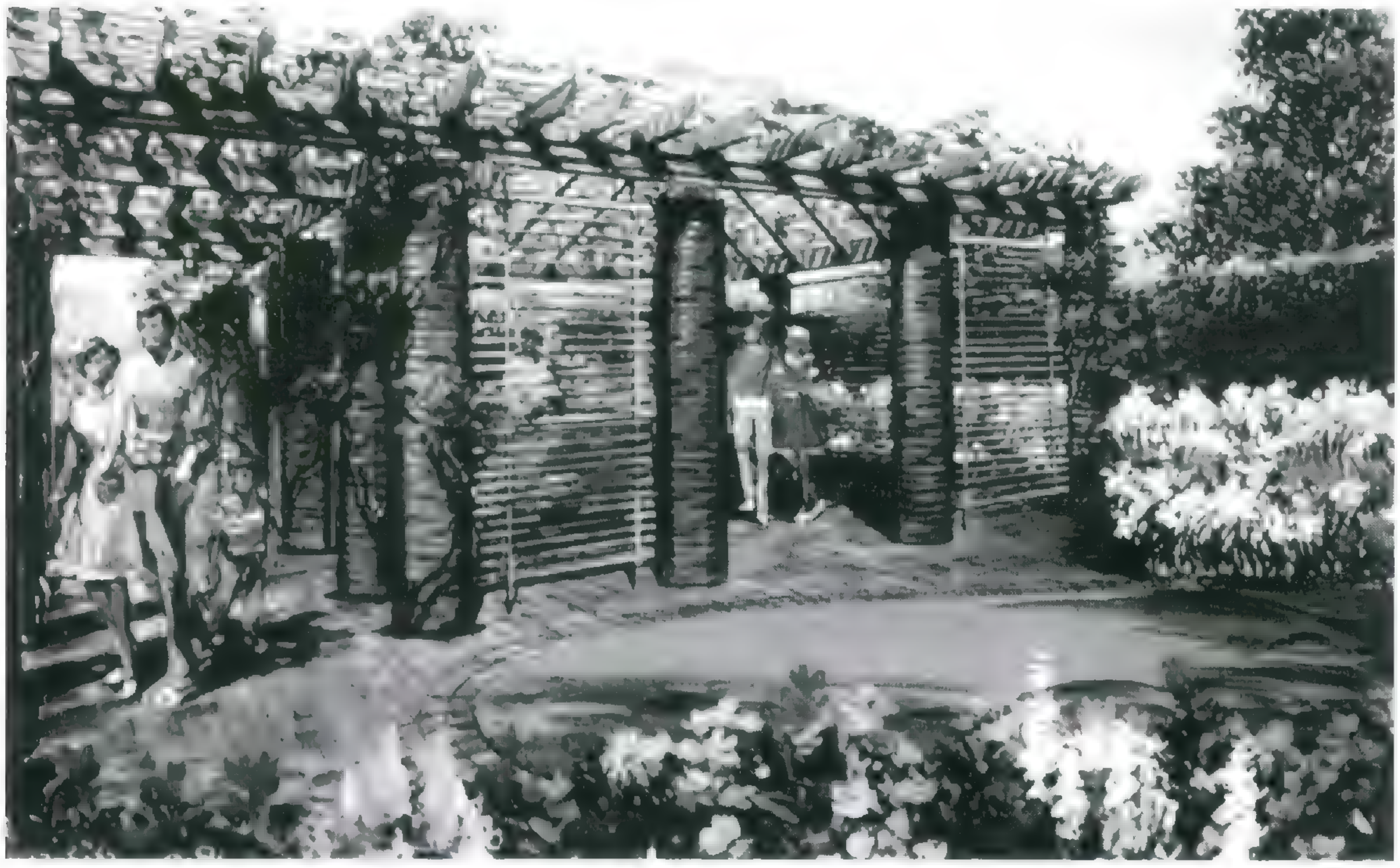
Coinco Summer Plant House

COIN ACCEPTORS, INC., has made the naming gift for the Summer Plant House, one of the 23 outdoor demonstration gardens at the William T. Kemper Center for Home Gardening.

The Summer Plant House is an open-sided structure of cedar laths designed to display house plants outdoors in the spring, summer, and fall. The cool, airy shade of the plant house will be bright with colorful annuals, orchids, foliage, and flowering plants.

Baskets filled with blooms will hang in the window openings in the lattice, and potted plants will fill bedding containers around the walls. The displays will be planted with a wide variety of species especially suited to growing in containers both in and out of doors in St. Louis.

The Summer Plant House will be a cool place to sit in the shade and enjoy the Kemper Center Gardens. It is also equipped with a workbench and sink to serve as a demonstration area for classes in potting, pruning, bonsai, flower arranging, planting containers, and other gardening techniques.



Coin Acceptors, Inc. is a longtime supporter of the Garden. Jack E. Thomas, Jr., president and chairman of the board of Coinco, is a native St. Louisan who serves as a Garden trustee and chairs the Individual Gifts Committee for the Partnership Campaign.

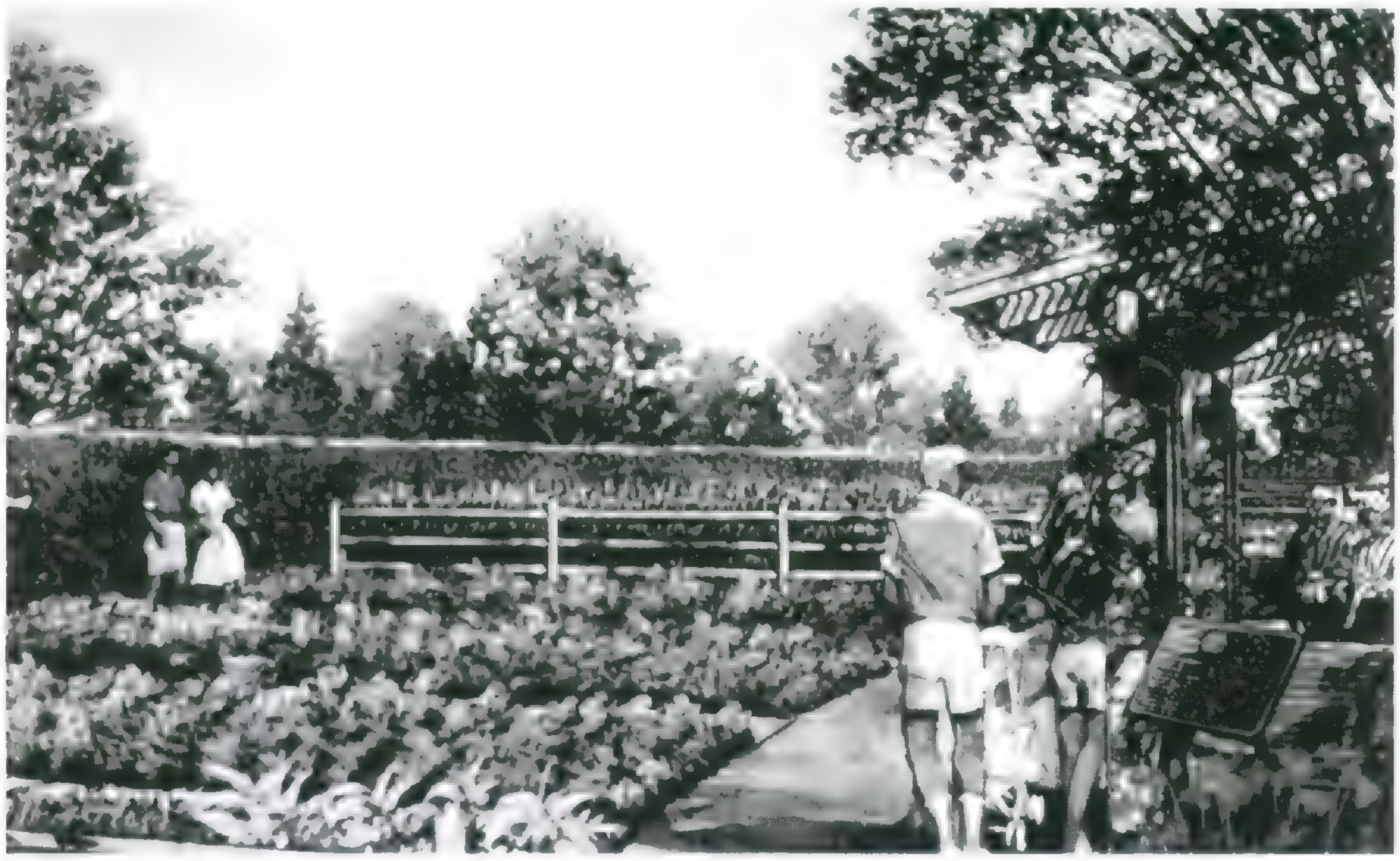
Peter Raven said, "We are delighted that Jack Thomas and Coinco have chosen to name the Summer Plant House, which will be such a wonderful addition to the demonstration gardens. The Summer Plant House is an educational facility that will be enjoyed by horticulturists and casual visitors alike."

Lois Whiteside Franklin Flower Trial Garden

THE NAMING GIFT for the Flower Trial Garden at the William T. Kemper Center for Home Gardening has been made by Jane Brauer Hunter-MacMillan and her sons, Stephen Franklin Brauer and A. John Brauer, in memory of Mrs. MacMillan's mother.

The family has supported significant projects at the Garden for many years, including the Gardening Calendar exhibit in the Kemper Center. Stephen F. Brauer is a trustee of the Garden and chairs the Special Gifts Committee of the Partnership Campaign; he is president of Hunter Engineering Company, another longtime supporter of Garden programs. A. John Brauer is the owner of AJB Farms, Inc., a wholesale greenhouse business.

The Flower Trial Garden will be a colorful display of blooms throughout the growing season, with 2800 square feet of plantings bordering a long curved walkway. Individual plots in the garden will be planted with new annual and perennial varieties being evaluated for their durability, aesthetic appeal, and suitability for home gardens. A tapestry hedge of twelve different selections defines the garden on the south, serving as a beautiful backdrop to the flower plots.



Enclosing the display on the north is a row of ornamental fruit trees. At the mid-point along the walkway, visitors will find a a cool airy shelter of masonry columns with a roof of cedar laths, a delightful place to sit and enjoy the flower garden. At the east end, the Flower Trial Garden ends at a circular fountain with six bronze geese kicking up sprays of water in a cheerful display.

Peter Raven said, "The Flower Trial Garden embodies our mission to present outstanding new plant selections for the benefit of Midwestern gardeners. It is a true 'gardener's garden' and a wonderfully appropriate memorial to Mrs. Franklin, who was an avid, enthusiastic, and highly knowledgeable gardener. We are deeply grateful to her daughter and grandsons for their gift of this splendid display."

CLIFF WILLIS

Left and below: Emmett Burt, science outreach instuctor, leads an elementary class at Garfield Elementary School. Students made a gelatin disk as part of a GEMS unit called "Involving Dissolving."

The E. Desmond Lee Family Outreach Program

Science Education for Today and Tomorrow

DETECTIVE stories... balloons... green slime... blindfolds and noisemakers! This may sound like a recipe for a really great kids' birthday party, but it is really just a few of the props Emmett Burt uses to help elementary students and teachers learn about science.

Burt is the Garden's science outreach instructor, and his work is made possible by the generosity of Mr. and Mrs. E. Desmond Lee and their family. The Lee Program, established in 1995, makes it possible for the Garden to send a teacher to underserved St. Louis area schools that otherwise may not be able to take advantage of special opportunities in science education.

In the outreach classes, Burt and the students may solve a detective mystery, or investigate the properties of a mysterious substance, or design a spaceship. The enthusiasm of the students and their teachers is one of the most positive things about the outreach program. "I like helping people discover that science doesn't have to be intimidating," Burt said. "It is something both students and teachers can enjoy, and the thinking skills they learn will help with all their studies."

Burt uses the GEMS program, "Great Explorations in Math and Science." GEMS, developed over the past 12 years at the University of California at Berkeley's Lawrence Hall of Science, has been tested and used in thousands of classrooms nationwide. GEMS offers a series of activity-based lessons that challenge students to investigate science concepts. The GEMS activities are fun, but they also encourage critical thinking, build language and math skills, and teach children to work together.

Currently, Burt is working with the Normandy School District, which has eight elementary schools. He visits three or four schools each semester, working with several classes at each school and leading nine sessions with each class. He works side by side with teachers, who gradually take more and more responsibility for leading the science lessons.

"I am really pleased with the progress we have made so far," Burt said. "Our overall goal is to make the program self-sustaining, so that the teachers can teach science on their own with confidence."

"Our Lee Outreach Program has two other components," explained Barbara Addelson, manager of science outreach for the Garden. "In addition to working directly with elementary school students and teachers, Emmett leads afterschool science activities for community youth groups."

This fall, 20 children from the Herbert Hoover Boys and Girls Club joined Burt and other Garden staff for a nature hike at the Arboretum. Burt said, "Many of the children have never seen a natural area before. They really love seeing the forest and all the things that live there, and it helps them understand what natural science is all about."

The other aspect of the outreach program is teacher training. The Garden provides teacher workshops during the year. Addelson explained, "Improving science education is the overall goal of the Garden's outreach program; by training just one teacher, we can help generations of students."

She continued, "One of the great benefits of the GEMS program is that teachers can use it even if they do not already have a strong background in science. Eventually we hope to extend our efforts to follow students through all grade levels. We are extremely grateful to the Lee family for making this opportunity possible."

Home Gardening

LOW MAINTENANCE PERENNIALS

ALL PERENNIALS live for two or more years, but not all are created equal! Some perennial plants require exhausting amounts of staking, pruning, spraying, and propping to appear even somewhat presentable during the summer months. All of those plants fall into my high-maintenance category, and I permit only the most endearing to enter my garden walls.

What Does Low Maintenance Mean?

To qualify as low-maintenance for busy gardeners, perennials must not require staking and should not need dividing more than every three years. In addition, they must be resistant to diseases and pests, be winter hardy, and have attractive foliage throughout the growing season.

Care

Low-maintenance perennials require less work than many other plants, but they still need top-notch care to look and perform their best. Prepare the planting beds carefully to ensure a moderately fertile, well-drained soil. Avoid adding excessive nitrogen, as it produces an abundance of floppy new growth that is vulnerable to disease. Water carefully; low-maintenance perennials demand water when the soil is dry and do not tolerate excessive moisture around the roots. Provide proper sun exposure, adequate spacing, and good air circulation around the plants.

All of the species below will be on view this summer in the demonstration gardens at the Kemper Center for Home Gardening. Keep in mind that most perennial borders look their best during their second or third season!

Sun-Loving Low Maintenance Perennials

ELLEN STROTHER

Black-eyed Susan, or Coneflower
Rudbeckia fulgida var. *sullivantii* 'Goldsturm'

Two to three feet tall and 18 to 24 inches wide, hardy to Zone Three. Prefers full sun. Flower heads are one and a half to three inches wide and bloom from midsummer through fall. Flower heads have bright orange yellow rays that are deep orange at the base, with deep purplish brown central disks. Seed-grown plants are not as desirable as vegetatively propagated plants. Species native to the eastern and central U.S.

Boltonia, or False Aster
Boltonia asteroides 'Snowbank'

Reaches four feet tall and two to four feet wide, hardy to Zone Three. Tolerates full sun to one-quarter shade. Numerous daisy-like flower heads, one inch wide, white with yellow centers, appear in July and August. *Boltonia* prefers well drained ordinary soil. Species native to the eastern and central United States.

Kansas Gayfeather, or Blazing Star
Liatris pycnostachya

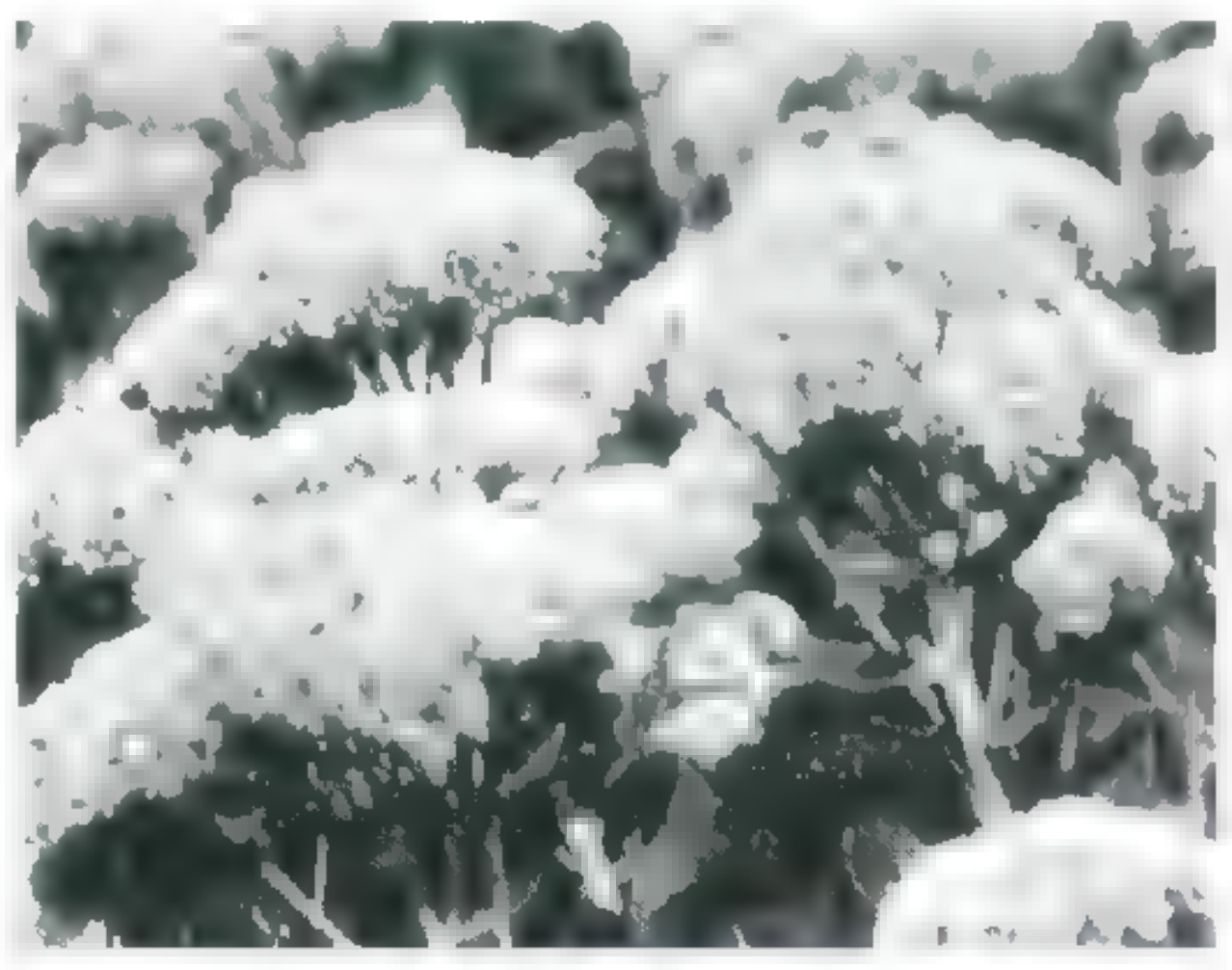
Three to five feet tall and two to three feet wide, hardy to Zone Three. *Liatris* requires full sun. Pinkish-purple flower spikes appear from midsummer through late summer. Foliage is dense and spiky. *Liatris* prefers sandy, moderately fertile, well-drained soil, especially during winter. Flowers attract butterflies. Species native to the central United States.

Purple Coneflower
Echinacea purpurea

Reaches three feet tall and two feet wide, hardy to Zone Three. Rosy purple daisy-like flower heads are three inches across and bloom in summer. Interesting deep green foliage is coarse with jagged edges. Divide every three years or when plants become crowded. Species native to the central and eastern United States.

Russian Sage
Perovskia atriplicifolia

Grows three to five feet tall and two feet wide, hardy to Zone Five. Requires full sun. Purplish-blue flowers appear from July through September. This is an aromatic subshrub that should not be cut back in fall. Cut back to the ground in early spring before growth starts. Species native to Pakistan and Afghanistan.



Sedum
Sedum purpureum 'Autumn Joy'

Grows 18 to 24 inches high and wide, hardy to Zone Four. Prefers full sun to one-quarter shade. Flower heads, up to four inches across at maturity, turn pink in late summer, darker by fall, and bronze before winter. Neat and tidy foliage resembles broccoli in summer. Discard the center of the plant every three years during division to keep foliage upright. Species native to Asia and Europe.

Siberian Iris
Iris sibirica 'Caesar's Brother'

Two to four feet tall and three feet wide, hardy to Zone Four. Prefers full sun or light shade. Velvety purple blooms appear on three-foot stems in early summer. The foliage remains attractive all summer long. Divide every three years or when plants seem crowded. Species native to Central Europe and Russia.

Thread-leaf Coreopsis
Coreopsis verticillata 'Moonbeam'

Grows 18 to 24 inches tall and two feet wide, hardy to Zone Three. Requires full sun. Creamy yellow blossoms appear in early summer and last until fall. Foliage is fine textured and blends well with other plants. Winner of the 1992 Perennial Plant Association's Plant of the Year Award. Species native to the southeastern United States.

Veronica, or Speedwell
Veronica spicata 'Red Fox'

Ten inches tall and 15 to 18 inches wide, hardy to Zone Three. *Veronica* requires full sun to one-quarter shade. Deep rosy pink blooms on graceful tapered spikes appear in summer. Do not allow soil to dry out. Species native to

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	*David Brown*	727-2385
Belleville Area Rose Society	*Dennis Nelson*	618-233-4609
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Sue Reed*	965-6813
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
West County Daylily Club	*Roy Bohrer*	240-8780

TELEPHONE HELP

HortLine Offers 24-Hour Help

(314) 776-5522

Call HortLine for recorded gardening information 24 hours a day! For an up-to-date listing of "Plants in Bloom" at the Garden, press 3 when you call HortLine.

24-hour recorded gardening information is available with a touch tone telephone. You will need a brochure listing the hundreds of HortLine topics in order to use the service; you may request a brochure by calling the Kemper Center for Home Gardening at (314) 577-9440, 10 a.m. to 4 p.m. daily, or send a stamped, self-addressed envelope to HortLine, Kemper Center for Home Gardening, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

Horticultural Answer Service (314)577-5143
Monday through Friday, 9:00 a.m. to noon, Master Gardeners are on hand to answer your gardening questions.

Master Composter Hotline (314) 577-9555
9:00 a.m. to noon, Monday through Friday. After hours leave a message and your call will be returned. The Master Composter program is supported by the Monsanto Fund.

Europe and Asia.

Yarrow
Achillea 'Coronation Gold'

Grows two-and-a-half to three feet tall and 18 to 24 inches wide in three years, hardy to Zone Three. Requires full sun. Golden yellow disc-shaped blossoms appear throughout the summer months. Foliage is silvery green and fern-like. Harvest blooms when they peak, as pollen causes older flower heads to turn brown. Usually drought-tolerant only after it is thoroughly established.

— Ellen Vincent Strother, Horticulture Specialist for University Extension

Open House March 14, 1996
5:30 to 7:30 p.m.
Beaumont Room, Ridgway Center

Gardening Volunteers — We Need You!

In anticipation of the surge in activity in the outdoor gardens this spring, the Horticulture Division will hold an open house to recruit new volunteers. Applicants are needed to work at least three hours during the day, one day a week. Tasks will include planting, pruning, mulching, and general maintenance. Come talk with horticulture staff supervisors and learn about the opportunities to help with the original planting for the Kemper Center demonstration gardens, the Boxwood garden and the Chinese garden. To make a reservation for the open house or for more information about volunteering at the Garden, please call Jeannie McGilligan, manager of volunteer programs, at (314) 577-5187.

NEW! Volunteer Opportunity Hotline — (314) 577-9401

24-hour recorded information listing employment and volunteer opportunities available throughout the Garden. Access information with a touch tone telephone. The Hotline is updated bi-weekly.

The William T. Kemper Center for Home Gardening is open 10 a.m. to 4 p.m. daily. Admission is free with regular Garden admission. For information on classes and activities at the Center, please call (314) 577-9440.

The Plant Doctor is available at the Kemper Center for walk-in consultations from 10 a.m. to noon and 1 to 3 p.m. Monday through Saturday.

Calendar

continuing

"The Legacy of Wildness"
9 a.m. to 5 p.m. daily through March 15, Monsanto Hall. Magnificent color photographs by Robert Glenn Ketchum, internationally recognized nature photographer. Free with Garden admission.

March 22 Friday

Walter Cleveland Exhibit
9 a.m. to 5 p.m. daily, Monsanto Hall. A display of more than 50 floral prints, free with Garden admission.

April 5 Friday

"People on the Land" Exhibit Opens
10 a.m. to 4 p.m. daily, Tuesday through Sunday. Bascom Manor House, Shaw Arboretum. A new permanent exhibit opens to the public; see pages 4–5. Free with regular Arboretum admission; call (314) 451-3512 for more information.

April 13 & 14

Saturday & Sunday

Bonsai Society Show
Saturday, noon to 5 p.m.; Sunday, 9 a.m. to 5 p.m., Orthwein Floral Display Hall. Free with Garden admission.

April 18 Thursday

Greenhouse Sale of Signature Plants
9 a.m. to 6 p.m., in the greenhouse area. A special sale for Garden members; see next page.

April 18 – 21

Thursday – Sunday

Spring Plant Sale
Garden Gate Shop and Orthwein Floral Display Hall. See next page.

GARDENEXPO
LAWN & GARDEN 1996

April 27 & 28

Saturday & Sunday

2nd Annual GardenExpo
9 a.m. to 5 p.m. daily, Ridgway Center and grounds. See back cover for details.

April 20 & 21

Saturday & Sunday

Earth Day 1996: "Creating a Sustainable World — What Can You Do?"

9 a.m. to 5 p.m., Tower Grove Park, with some activities on Garden grounds. Visitors of all ages will enjoy educational displays, food, music, the fifth annual "Run for the Earth," a bike tour, the kids' favorite "All Species Parade," and more. Earth Day celebrates the diversity of life and is a forum for learning about issues affecting the health of the planet. Produced by the Alliance for a Liveable World in cooperation with the Missouri Botanical Garden. For more information, call 776-4442.

Members' Days

March 5 Tuesday

Lecture: "Hardy Antique Shrubs and Roses"

1 p.m., Shoenberg Auditorium. Slide lecture by Jeff Oberhaus, owner of Vintage Hill Farm, Franklin, Missouri, who will discuss rose history, different varieties, and the planting and care of roses. Free, for Garden members only. Seating is on a first-come, first-served basis.

April 11 Thursday

Lecture: "Butterfly Flower Power"

1 p.m., Shoenberg Auditorium. A slide lecture by Dave Tylka explores the variety of plant species that can be grown in your yard to attract butterflies, with an array of design ideas for your garden. Free, for Garden members only. Seating is on a first-come, first-served basis.

Coming Up —

May 4 & 5 Saturday & Sunday

African Violet Council Show and Sale
9 a.m. to 5 p.m. daily, Orthwein Floral Display Hall. Regular Garden admission.

every day

Free Walking Tours

1 p.m. daily. Meet the Garden Guides at the Ridgway Center ticket counter, rain or shine, for a fascinating tour of the Garden. Free with regular admission.

Schedule Tours Now!

Guided tours are available for groups of fifteen or more. Reservations are required, with five weeks advance notice. Due to heavy demand for spring tours, groups are encouraged to request dates in the summer or fall to avoid disappointment. Call 577-5140 to arrange for a tour.

Wednesdays and Saturdays

Garden Opens at 7 a.m.

Outdoor grounds open at 7 a.m., greenhouses open at 9 a.m. Breakfast is available for purchase in the Gardenview Restaurant between 7 a.m. and 10:30 a.m.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 30 minutes west of St. Louis on I-44. Arboretum grounds are open seven days a week, 7 a.m. to one-half hour past sunset. The Arboretum Visitor Center is open 8 a.m. to 4:30 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. Admission is free for Garden members. For information call (314) 451-3512.

24-Hour Information

Call GardenLine:

577-9400

24-hour recorded information about Garden events, hours, admission and directions. Outside area code 314, call 1-800-642-8842 toll free.

GARDEN GATE SHOP

April 18 - 21, 1996

Annual Spring Plant Sale

20% Members' Discount

Thursday and Friday — 9 a.m. to 6 p.m.

Saturday and Sunday — 9 a.m. to 5 p.m.

Plan your spring and summer garden! The Horticultural Answer Service will be on hand to answer all your questions.

In Orthwein Floral Display Hall, find annual bedding plants, geraniums, perennials, flowering hanging baskets, hybrid tea roses, miniature roses, azaleas, and summer flowering bulbs.

In the Shop, see the new spring gardening books and get your gardening accessories, tools, gifts, decorations, and ready-to-wear.

New!
Hand-Carved Birds

Come see hand-carved figures of birds and wooden boxes in cedar, butternut, and basswood by St. Louisan Dr. Manfred Thurmann.

March 5

Members' Day

Members receive an additional five percent discount on all rose merchandise, including pruners, mini-roses, books, notecards, ready-to-wear, silk flowers, gifts, etc.

March 17

St. Patrick's Day

Get your shamrock plants, gifts, and cards in the Shop.

April 7

Easter

Come to the Shop in March for Easter toys, decorations, gifts, Easter lilies, colorful blooming baskets for spring and summer, and Easter baskets to fill with jelly belly candies and garden-scene candy eggs.

April 23

International Book Day

Inspired by the Department of Culture of Barcelona, Spain, where booksellers sponsor the Catalan tradition "give a gift of love." With each book purchase, customers receive a free rose and are encouraged to give both rose and book to someone they care for.

April 11

Members' Day

Members receive an additional five percent discount on all butterfly merchandise, including seed kits for butterfly gardens, butterfly houses, gifts, notecards, ready-to-wear, books, and flower arranging accessories.

April 20 & 21

Earth Day

Join the celebration at the Garden and Tower Grove Park! Look for a new line of environmentally conscious products in the Shop, plus books, gifts, and ready-to-wear.

GATE SHOP continued

April 27 & 28

GardenExpo

The Shop will feature artists and exhibitors whose products can be found in the Shop throughout the year. Look for special sales promotions.

April 18 Thursday

Greenhouse Sale of Signature Plants

For Members Only

9 a.m. to 6 p.m., greenhouse complex. This is a very special opportunity for Garden members to purchase plants propagated from the Garden's own collection and get a look "behind the scenes" of the Horticulture Division. The Greenhouse Sale will feature:

- The MBG Signature Collection, including woody ornamentals and flats of perennials propagated from the English Woodland Garden and the Rock Garden.
- Selected greenhouse inventory of large and/or unusual specimens.
- Selected inventory from the Chinese Garden.
- Flats of bedding plants propagated by the Horticulture staff from annuals that will be featured throughout the Garden this spring and summer.
- Easy pick-up in the greenhouse area.
- Horticulture staff and Master Gardeners will be available to answer your questions.
- Garden members will have the rare opportunity to visit the Lath House and the Head House of the greenhouse complex, the Garden's center for propagation.

New officers (from left): Sally Driemeyer, Ann Bowen, Margie Jaffe, Liz Teasdale. Not pictured: Susie Schulte, Bob Buck.

New board members (from left): Barbara McKinney, Ann Case, Carol Squires, Tosca Schaberg. Not pictured: Ed Barnidge, Carol Gaskin.

Garden Tour

1996

Coming Up on Sunday, June 9, 1996

A very special tour just for Garden members! All new gardens, never seen before on one of our tours — these are among the loveliest private gardens in St. Louis. Mark your calendar today, and watch the mail for your special invitation.

Garden Tour Finale Party

At the end of the day, celebrate with a gala party at a beautiful private home and garden that are not part of the day's tour. By reservation only — please watch for your invitation in the mail.

MEMBERS' BOARD ANNUAL MEETING

New Officers and Board Members Elected

At the annual meeting of the Garden Members' Board in January, Mrs. Stephen F. Bowen, Jr. was elected president. Mrs. Bowen succeeds Mrs. Robert P. Tschudy, who served as president for the past two years.

Other new officers elected are Mrs. Martin E. Jaffe, first vice president; Mrs. Derick Driemeyer, second vice president; Mrs. Kenneth F. Teasdale, secretary; Mrs. Robert N. Schulte, corresponding secretary; and Mr. Robert G. Buck, treasurer.

New members elected to the Board were Edward C. Barnidge, Jr., Mrs. C.A. Case, Jr., Mrs. Fred W. Gaskin, Mrs. Joseph K. McKinney, Mrs. Kevin B. Schaberg, and Mrs. James H. Squires.

The Members' Board paid tribute to Jane Tschudy for her past two years of service as president. Presenting Mrs. Tschudy (right) with a gold medallion on behalf of the Board, Ann Bowen said, "Jane has made a wonderful contribution to the Garden and the Members' Board with her energy, enthusiasm, and leadership."

A Special Thank You

We are very grateful to Liz and Kenneth Teasdale for their generous sponsorship of Lyndon B. Miller's lecture at the January Members' Day, ""Oases in the City: Restoring New York's Public Gardens."

Operation Brightside and Urban Gardening Partnership Team Up for Community Greening

The Missouri Botanical Garden, Gateway to Gardening, and University Extension are working with Operation Brightside to help community groups beautify their neighborhoods. A $162,000 grant from the St. Louis Development Corporation will support 24 Enterprise Community Greening projects over the next two years.

Grants for urban greening projects will be funded based on proposals submitted by neighborhood groups within the Enterprise Community in St. Louis City. Projects may include planting trees, annuals, perennials, vegetable plots, or other landscaping. The program will include workshops for the volunteers on managing and maintaining their projects, training sessions on gardening techniques, and help with planning, constructing, planting, and maintaining garden areas.

On-the-job training is an important component of the project. Each year, four horticulture trainees will be hired for one three-month period. They will receive two weeks of intensive training at the Garden in the basics of planting and garden maintenance. For the next ten weeks, the trainees will work on the community greening projects under professional supervision. At the end of the three-month period, the program will assist the trainees in seeking full time jobs in the horticulture or landscaping industries.

"This is a wonderful way to extend our community outreach," said Steve Cline, manager of the Kemper Center for Home Gardening. "The Urban Gardening Partnership's Neighborhood Greening Program has been very successful, and we are looking forward to extending our activities with the help of Operation Brightside."

The Urban Gardening Partnership is a coalition based at the Garden that includes the Missouri Botanical Garden, Gateway to Gardening, and University Extension. Any organization, neighborhood group, block unit, or school in the Enterprise Community is eligible to compete for greening grants. For more information, please call Gateway to Gardening, 577-9484, or Operation Brightside, 781-4556.

A World Class Library

THE Missouri Botanical Garden library is widely recognized as one of the top-ranked botanical libraries in the world. In 1993 it was recertified by the U.S. Department of Education as a major research library and in 1995 it received a $294,000 challenge grant from the National Endowment for the Humanities. (See the *Bulletin*, March/April 1995.)

The need for a new library facility is urgent. The collection has 118,000 volumes and adds about 2,000 each year; the present library cannot accomodate this rapid growth and currently a large portion of the collection must be stored off Garden grounds.

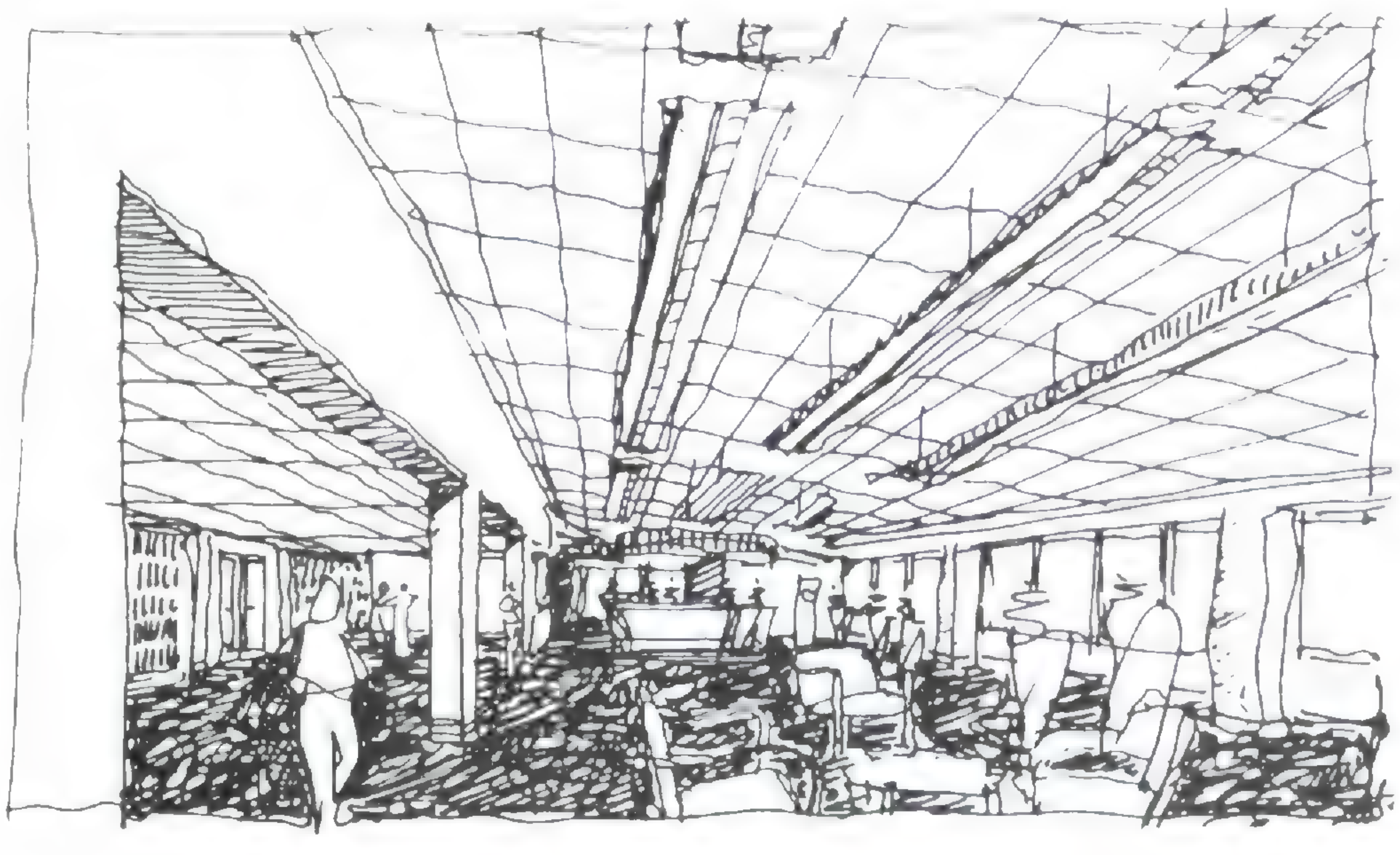
The new library will be located on the top floor of the research center to be built at the corner of Shaw and Vandeventer. The new facilities will accommodate all volumes in one location on mobile high density storage shelves, which occupy half the space of traditional shelving. The new library also will house the Garden's Pre-Linnean collection of rare books dating to 1474, and expanded facilities for the Shoenberg Book Conservation Center. Like the research center itself, the library is designed to expand to the west, allowing for future growth.

As with the rest of the research center, the library is designed for energy efficiency and environmental sustainability. The library space is divided into functional zones, with book storage areas located on the cooler, darker north side of the building in a climate-controlled setting. The storage areas will have sophisticated temperature, light, and humidity controls to help preserve the valuable collection through time. Public areas will have tall windows, providing broad views over the surrounding trees and rooftops.

The south side of the building, with its massive expanses of glass, will provide a bright, inviting, open reading area for researchers, visitors, and staff. Special solar reflectors and a vaulted ceiling will gently illuminate the reading areas. All of the periodicals, reference materials, and on-line computer services will be available in this area with pleasant lounge and study areas among the low library shelving. Staff will be easily accessible at the open circulation desk.

In the center of the library, a glass-walled Pre-Linnean Reading Room will house the Garden's most precious old volumes in finely crafted cherry wood cabinets. An open weave metal screen inlay in the cabinet doors will provide ventilation for the rare books. The reading room has been designed in a contemporary style using traditional materials. A rug with a Matisse-inspired design will provide color, pattern, and texture. Focused low voltage lighting will highlight the books in their cases and make the room's glass walls shimmer. Two tables with reading lamps will allow visitors to examine the rare books.

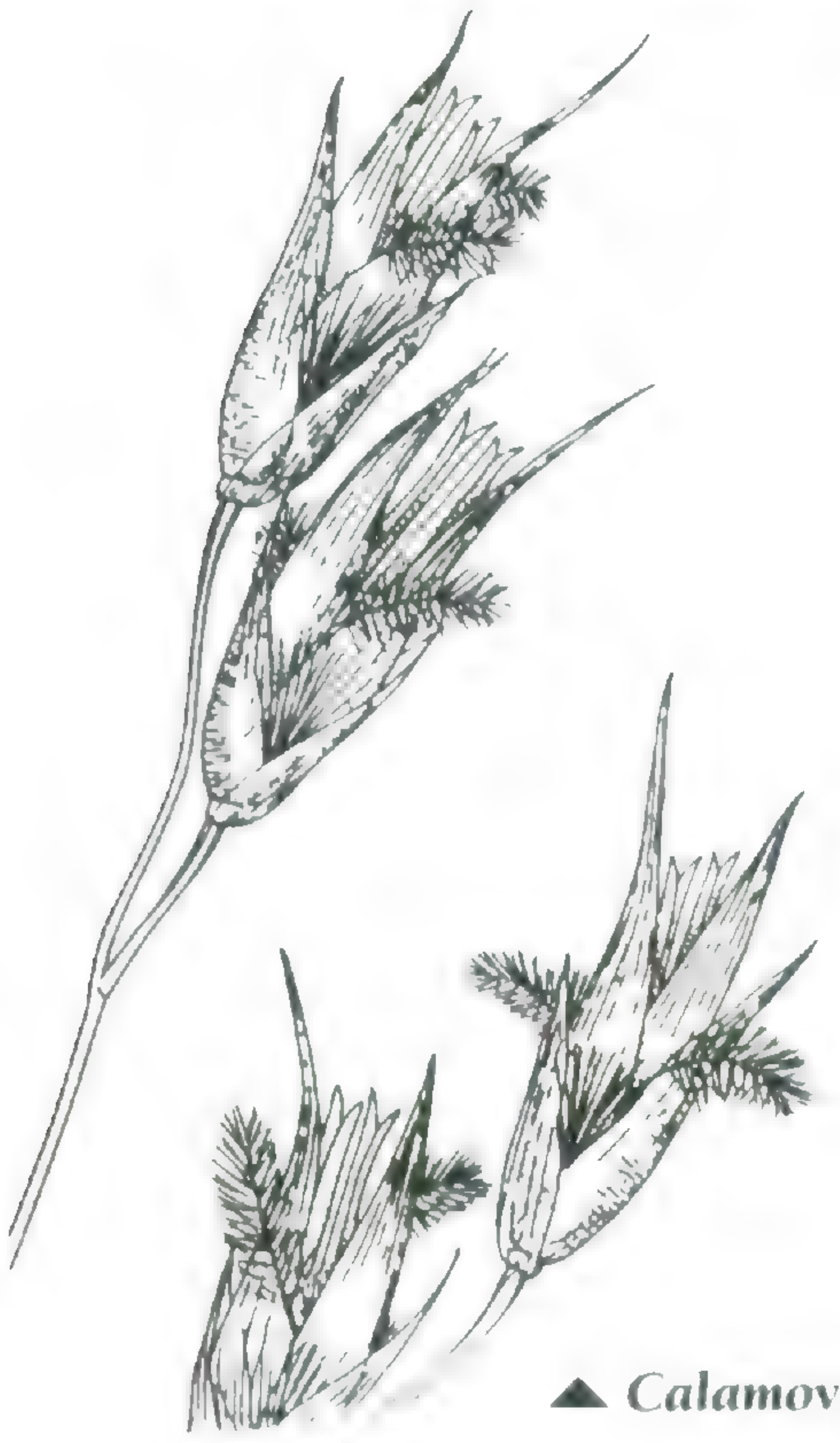
"Humans depend on plants for survival; their relationship to plants is completely interwoven with cultural, economic, and social aspects of life," said Constance P. Wolf, the Garden's librarian. "By improving access to our collection, the new library will make an important contribution to the community as well as to the scholars and researchers who use it every day."



A sketch of the interior of the new library

"Rare Beauty" Focuses on Conservation

YOU & THE
ENVIRONMENT



▲ *Calamovilfa arcuata*

THOUSANDS of Garden members and visitors enjoyed the exhibit "Rare Beauty: America's Endangered Plants" displayed at the Garden last spring. The magnificent color pictures of seldom-seen plants by photographer Maryl Levine featured many of the rare plants native to the United States.

In conjunction with the Rare Beauty exhibit, the Garden and the Center for Plant Conservation (CPC) developed a series of materials to highlight their collaborative conservation efforts.

Plant species are being lost at an alarming rate, not just in tropical forests, but worldwide. Of the 20,000 plant species native to the United States, approximately one-quarter are of concern to conservationists. The CPC, with its headquarters at the Garden, is a national network of 25 leading gardens and arboreta, each of which is responsible for preserving rare plants from its biogeographical region. The Missouri Botanical Garden is a member of the CPC network and maintains collections of many of the rarest plant species of the midwestern United States.

The projects below were made possible by generous support from the U.S. Fish and Wildlife Service's Missouri Field Office, the Missouri Department of Conservation, the Garden Club of St. Louis, and the Ladue Garden Club. We would also like to thank Maryl Levine for generously offering the use of her photographs to the CPC to promote plant conservation. Ms. Levine's beautiful images will highlight many of the CPC's future projects.

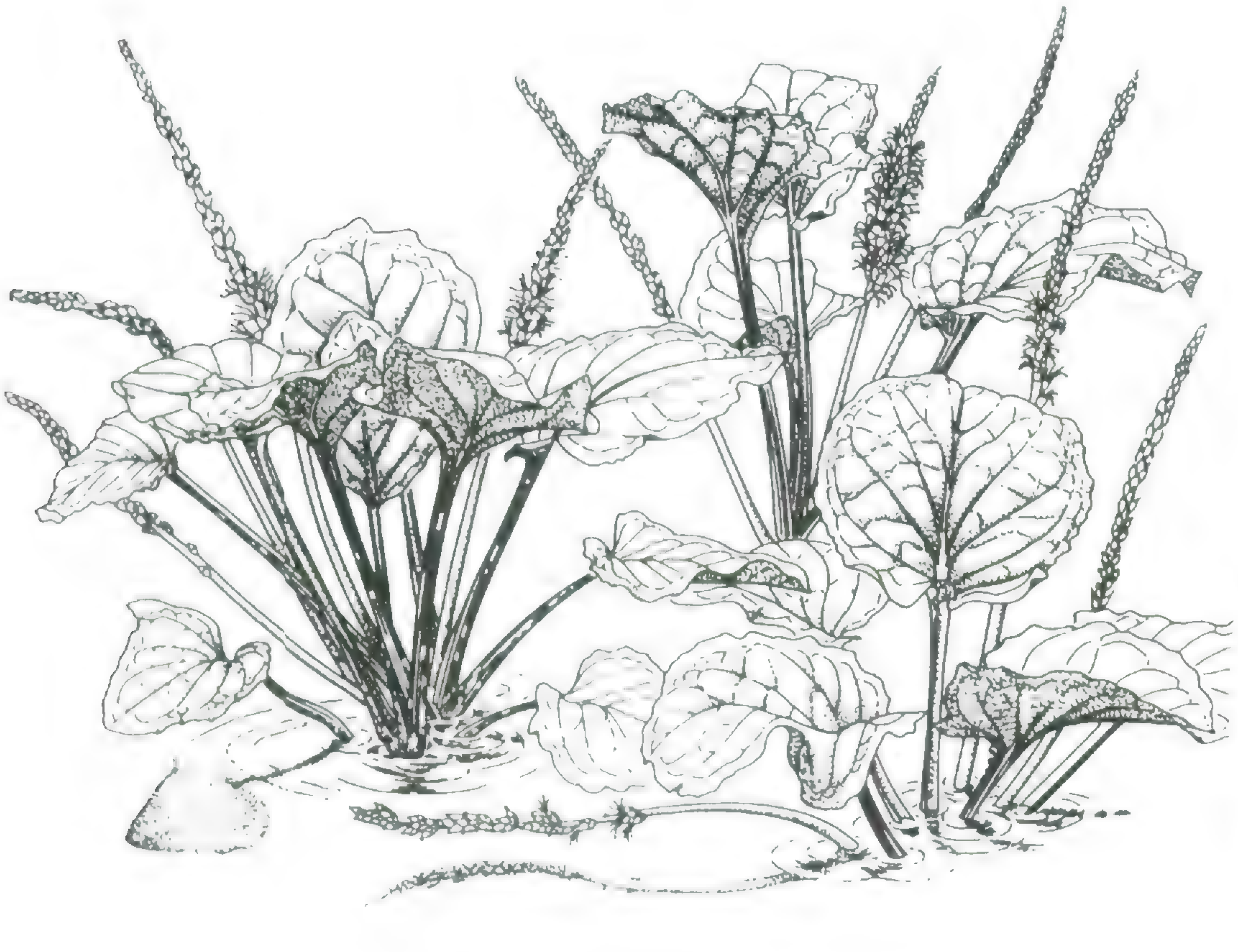
Two New Brochures

Two new brochures were produced for Garden visitors. "Rare Plant Conservation" highlights the Garden's collaboration with the CPC and provides a map of the rare plants on display on the grounds. The other brochure, "Protecting Missouri's Rarest Plants," introduces rare plants found in Missouri, discusses threats to their survival, and assesses their current endangerment status. Please look for these new brochures at the Information Desk near the Ridgway Center ticket counter.

New Story Signs

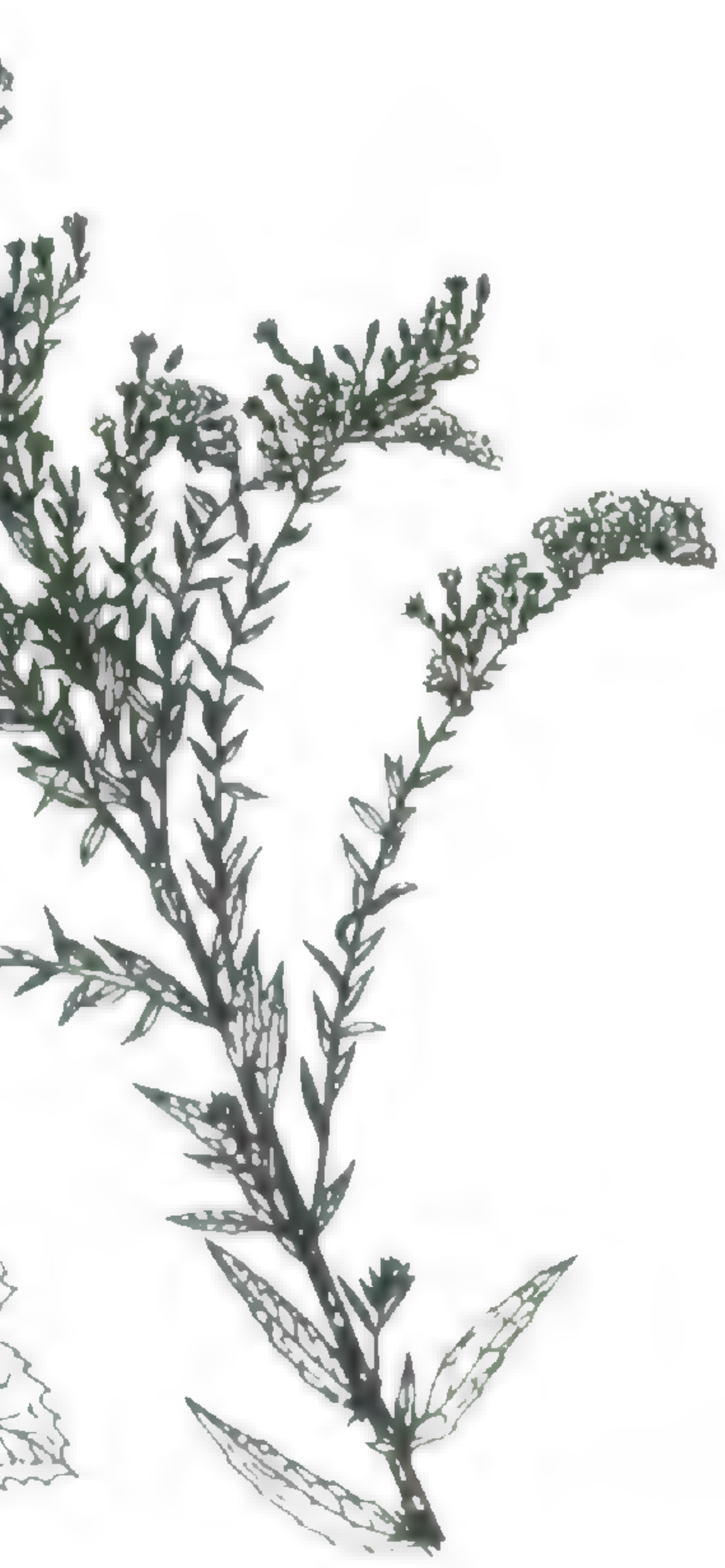
Visitors to the Garden will be able to enjoy splendid new story signs for the rare species

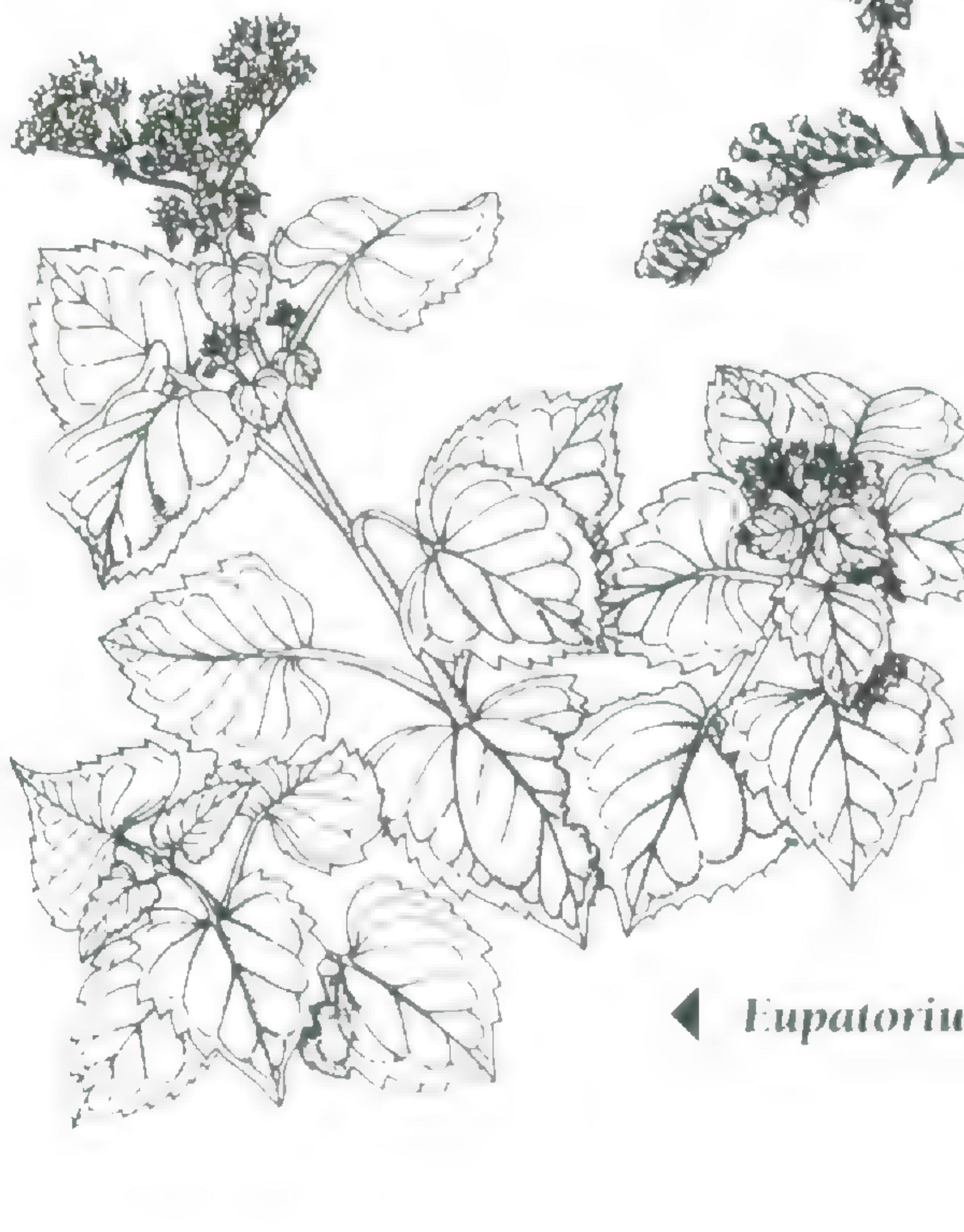
continued on next page



▲ *Plantago cordata*

Solidago shortii ▶





◀ *Eupatorium lucie-brauniae*

Illustrations of the Center for Plant Conservation National Collection Taxa, by Linda Ellis on display as soon as the plants resume their growth this spring. As part of this project, a series of line drawings of rare species in the collection were commissioned from botanical illustrator Linda Ellis. These beautiful drawings were featured on this page; they appear on the new signs, in one of the brochures, and will be used for future projects as well.

Traveling Exhibit

A 16-panel exhibit was developed to showcase the CPC's rare plants in protective cultivation at the Garden. Each panel of the exhibit features a colorful photograph and a story about one of the species. Last summer three of the panels were loaned to the Garden Club of Cincinnati to help with their education efforts; the exhibit is now available for loan to institutions in our region.

Poster Display

Visitors also may have noticed the three-panel poster display located outside the Garden Gate Shop. Colorful graphics and photographs outline major issues in plant conservation, the national role of the CPC in the protection of native plants, and the good work that is being done locally by the Missouri Botanical Garden as part of the CPC network.

The Garden and the Center for Plant Conservation are deeply grateful to all those who helped us to make the "Rare Beauty" projects a great success.

— Anukriti Sud, manager of CPC conservation programs, and Kayri Havens, Ph.D., MBG conservation coordinator

CLIFF WILLIS

TEACHING TEACHERS — Eleven elementary school teachers conducted a workshop for their peers at the Garden in January, part of the "Natural Science Institute" funded by the Howard Hughes Medical Institute. The "Teacher to Teacher" workshop was the culmination of their year-long training to become leaders in improving science education in their schools. Last spring the teachers attended ten training sessions in ecology and biology, then led a two-week summer ecology program for elementary students. In the fall and winter they worked with other teachers in professional development workshops. Shown here, participants experiment with a larger-than-life-size model of a cell.

TROPICOS Has One Million Specimen Records

Since the Garden began keeping its plant records on computers in the early 1980s, the information has grown rapidly; late in 1995 the total number of specimen records in the TROPICOS database exceeded one million.

This milestone is even more significant when one considers how records were kept before computerization: every single plant label was typed individually in a slow, laborious process. Anyone wanting to compile information from the labels had to sift through mounds of specimens. Today, labels are rapidly generated on the computer, which simultaneously enters the information into the database. The database can provide valuable information in ways that once would have been impossible; for example, a quick, accurate list of all the plants that occur in a specific area at a specific altitude and flower between May and June.

Joan Quante has prepared labels for herbarium specimens at the Garden for over 15 years. "It used to be very difficult to type each label accurately," she explained. "Many of the entries have words in other languages that need special characters and accents that had to be added by hand. We used to print up batches of labels when they all carried identical information, so we only had to type the items that varied from label to label. The computer does all that automatically, but it doesn't make the botanists' handwriting any easier to read!"

CLIFF WILLIS

In the herbarium, Joan Quante enters information about dried herbarium specimens into TROPICOS, working from botanists' handwritten field notes.

The computerized records in TROPICOS represent plant specimens collected by Garden researchers around the world since 1985. TROPICOS also includes supplementary records of more than 750,000 published plant names, plus synonyms, distribution information, and other associated information.

IN MEMORIAM

Ruth Heywood Culver
1893-1996

Staff and volunteers of the Garden were saddened by the death in January of Ruth Heywood Culver, one of the founding members of the Tower Grove House Historical Committee. In the early 1950s Mrs. Culver, Mrs. John S. Lehmann, and Mrs. Neal Wood began working to promote the restoration of Tower Grove House, and the Historical Committee was formally established by the Garden's Board of Trustees in April 1959.

The Committee has been actively involved in restoring Tower Grove House to its authentic Victorian splendor ever since.

Mrs. Culver returned to serve on the Historical Committee from 1983 to 1986. When she resigned, she gave her "founder's pin," a dainty reproduction of the Climatron in gold, to be passed on to each new chairman of the Historical Committee.

Mrs. Culver was active in supporting many cultural and charitable organizations in St. Louis. She was the widow of Edwin R. Culver, Jr., grandson of the founder of Culver Military Academy.

Peter Raven said, "Ruth Culver helped to establish Tower Grove House and helped to guide the progress of its restoration for many years, an enormous contribution to the Garden. Her boundless energy and enthusiasm were a delight, and we will miss her."

BEHIND THE SCENES

Blanche "Babs" Wagner

The Orchid Show this winter was a spectacular and colorful sight thanks to Blanche Wagner, who joined the Garden's Horticulture Division as staff orchidologist in October. Babs had her work cut out for her to get the orchids ready for the annual show. There are about 11,000 plants in the collection, including many historic and rare species.

CLIFF WILLIS

Babs is a native of St. Louis. She earned a bachelor's degree from Webster University and an associate's degree in horticulture from St. Louis Community College at Meramec. Her horticulture training included a three-month internship at the Garden in 1979 with the late Alan Godlewski. Babs said, "Returning to the Garden as a member of the staff is a real privilege."

Babs's fascination with orchids began with two cattleyas that her husband rescued years ago from a dumpster. Today she grows a variety of orchids in her home and her own greenhouse; "I don't have a favorite," she says, "I love them all!" Before joining the Garden staff, Babs did interior plantscaping and worked in the greenhouses at Ahner's Nursery.

The Garden's orchid collection has been outstanding for many years, and Babs is looking forward to showcasing the plants and adding new ones. Maintaining such a large collection with such varied cultural requirements is a challenge, and Babs credits the dedicated volunteers who help care for the orchid collection. "They are just wonderful," she says; "We couldn't manage without their knowlege, their skills, and their tremendous help."

Peter Raven said, "We are very fortunate to have found an orchid specialist of Blanche's caliber. The orchid collection has been a tremendously important one at the Garden for decades, and with Blanche's supervision it is in good hands."

Registration Starts March 1

Summer Science for Kids

Classes at the Garden, Shaw Arboretum, the Litzsinger Road Ecology Center, and in the field offer exciting investigations in science and the natural world for kids ages 4 to 17. Classes and outdoor programs challenge students to "learn by doing" and build on science they learn in school.

New This Summer —

Special activities for high school and junior high students!

Before and After Care

Drop your child off at 8:30 a.m. (unless the program starts earlier) and pick him or her up at 5:30 p.m.

New Prices!

Classes fill quickly, so please register soon. Activities include:

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Crime Lab Gumshoes
Creature Feature
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Canoeing and Camping
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Gardening Apprenticeships
And more!

See the brochure mailed recently to all members, or call (314) 577-9506 for more information.

PROFESSOR XU KEXUE VISITS THE GARDEN — A research scientist from the Institute of Botany at the Chinese Academy of Sciences, Prof. Xu Kexue, visited the Garden last winter to meet with Garden researchers. Prof. Xu discussed computerization, botanical databases, and ways they might be linked using Chinese characters. He is shown here meeting with Christine McMahon, manager of the Botanical Information Management Department at the Garden.

Have You Seen...

Wisteria

If plant performances were measured in *oohs* and *aahs*, few could match a well-grown wisteria vine in full bloom. The magnificent specimen of Chinese wisteria, *Wisteria sinensis*, on Teahouse Island in the Japanese garden makes a spectacular sight in April as it clambers over a low bamboo frame that extends out over the surface of the lake.

Wisteria belongs to the legume, or bean, family. The two most common horticultural species are Chinese wisteria, W. *sinensis*, and Japanese wisteria, W. *floribunda*; both are native to Asia, with dozens of cultivated varieties. There is even a wisteria native to southeastern Missouri: American wisteria, W. *frutescens* var. *macrostachya*.

Young plants of American wisteria can be seen at Shaw Arboretum in the Whitmire Wildflower Garden. Japanese wisteria grows on the east arbor in the Scented Garden, although it is a reluctant bloomer. Several Asian cultivars have also been planted in the Fragrance Garden and the Flower Borders at the Kemper Center.

Wisteria sinensis blooms on Teahouse Island in *Seiwa-en* in April.

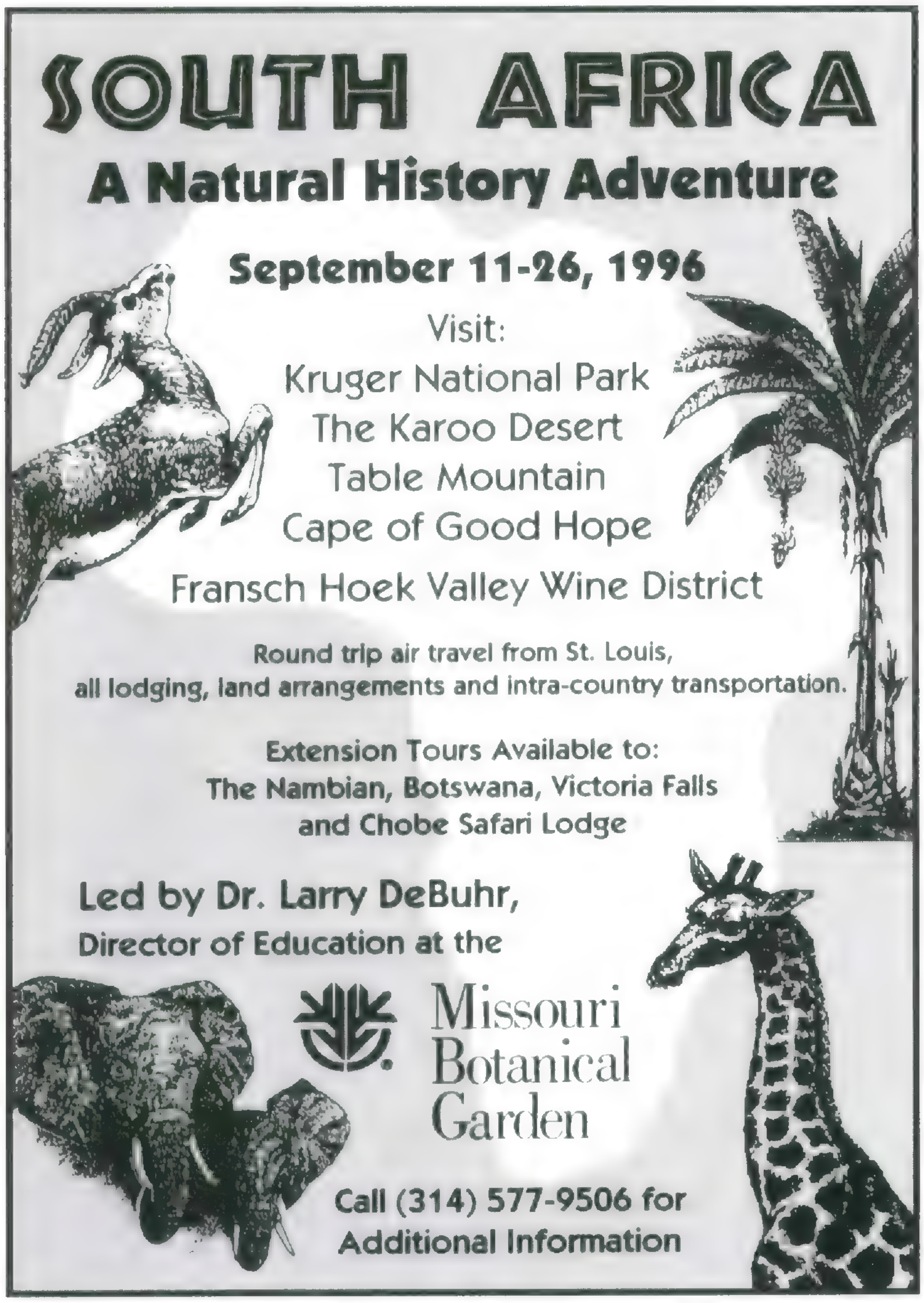
It is notoriously difficult to get wisteria to bloom. It may take more than a dozen years, especially if the plants are grown from seed. You will get better results with grafted wisterias selected for early bloom or named cultivars produced from cuttings.

Wisteria must have full sunlight to bloom. Flower buds can be damaged by severe winter weather, and soil that is too rich will produce excessive foliage and few flowers.

The best fertilizer for wisteria is superphosphate or similar high-phosphorous material. Avoid nitrogen fertilizers, which stimulate foliage growth. This can be a hidden problem if wisteria is planted near a fertilized lawn; the roots may need to be restricted by root pruning. This is done in late fall by plunging a sharp spade into the soil in a circle several feet out from the trunk, cutting all side roots.

Proper branch pruning is crucial for producing blooms in wisteria. In late winter, shorten the main woody branches by up to half their overall length. Cut back all the remaining side shoots, or 'laterals,' to three or four buds each. Every summer after flowering, ruthlessly thin and shorten excessive side shoots by about half, or just beyond the sixth or seventh leaf.

—Chip Tynan,
MBG Horticultural Answer Service



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September 5 – 20, 1996

The Missouri Botanical Garden is sponsoring a very special members' tour of "The Gardens of China" in early fall. For more information please call Brenda Banjak, (314) 577-9517.

England's Exquisite Gardens

June 28 – July 7, 1996

Registration closes April 17, 1996

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This special tour will be led by Ellen Strother, horticulture specialist for University Extension at the Kemper Center for Home Gardening. For a brochure or additional information please call 577-9442.

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The following bricks were donated to the Members' Entry Court at the William T. Kemper Center for Home Gardening between December 1, 1995 and January 31, 1996.

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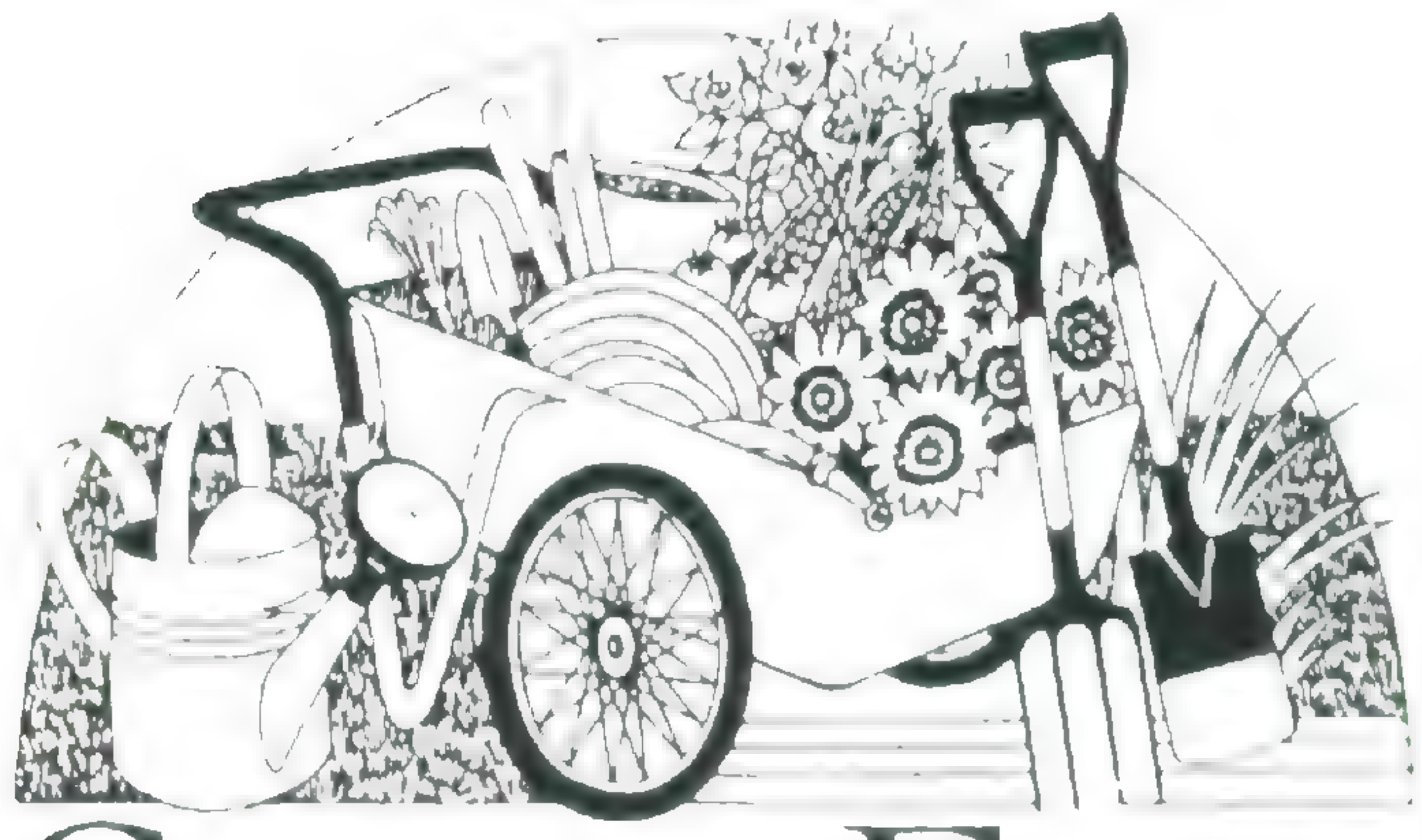
2nd Annual



GARDENEXPO

LAWN & GARDEN 1996

Sponsored by GrandPa's and Peters Plant Food

Saturday, April 27 and Sunday, April 28 – 9 a.m. to 5 p.m.

Fun, facts, and fascination will fill this exciting weekend as you explore a variety of gardening displays, booths, exhibits, and programs. Whether you're an expert or a novice, you'll find opportunities to learn more about the tools and techniques for successful residential gardening from our own Garden experts. You can also enjoy learning special garden tips from Mark Kane, executive gardening editor of *Better Homes and Gardens* magazine, and meet local author Kristen Joy Pratt, who will be here to sign her most recent book, *A Fly in the Sky*, accompanied by her original puppets.

- Garden horticulture staff and Master Gardeners provide expert gardening advice.
- Area plant societies offer information and plant sales.
- Tour the new Kemper Center gardens and the Garden's greenhouses.
- Gardening equipment, tools, supplies, and plants for sale.
- Demonstrations on lawn care, hanging baskets, soil preparation, naturescaping, adaptive tools and more
- Mark Kane of *Better Homes and Gardens* magazine presents a special program on designing your garden, plus tips for selecting and finding the most rewarding varieties of plants.
- Barbara Perry Lawton previews her new book on irises.
- Children can plant a seedling to take home or make a paper butterfly.
- Special display of bird houses made by area school children.
- Enter the drawing for a 14PZ John Deere Push Mower

TICKETS: $2 for Garden members; $5 for visitors ages 13 to 64; $3 for adults age 65 and over; children 12 and younger are free with an accompanying adult. Ticket prices include Garden admission . For information call 577-9400 or 577-5125.

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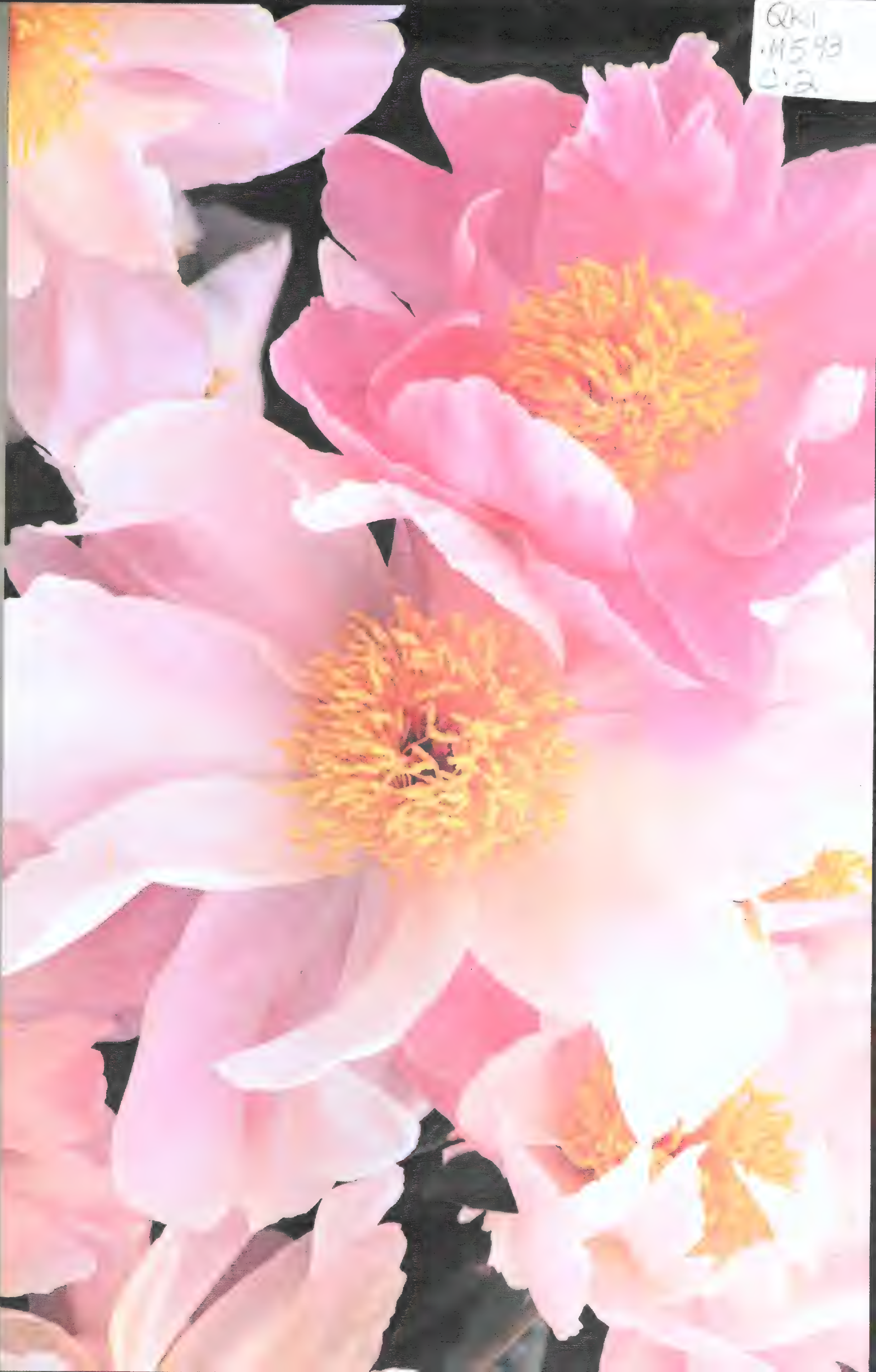
MAY / JUNE
1996

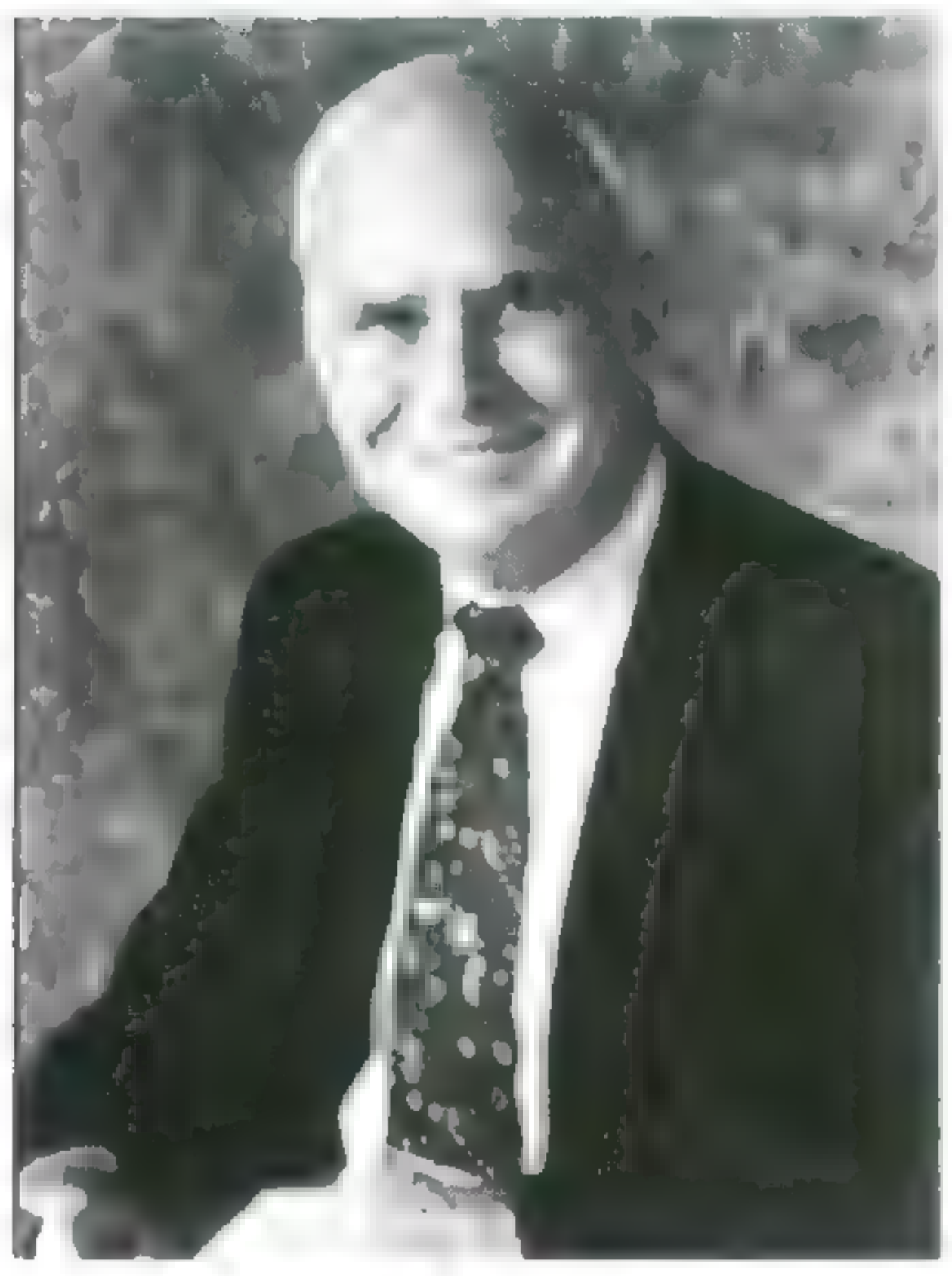
VOLUME LXXXIV
NUMBER THREE



Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS AND THEIR ENVIRONMENT, IN ORDER TO PRESERVE AND ENRICH LIFE."

THIS IS A TIME of extraordinary activity and achievement at the Garden, and we can all be proud to be part of it. The Partnership Campaign has made it possible to begin construction of our new research center, a major development for the future of the Garden, the Shaw neighborhood, and the city of St. Louis. We are very grateful for a magnificent gift from Monsanto that has been pledged to name the new Monsanto Library in the research center. I would also like to pay tribute to John Wallace, who is retiring as president of the Board of Trustees after overseeing our remarkable progress during the past three years. John has made an outstanding contribution as president, and we look forward to continuing under the leadership of William H.T. Bush, the new president of the Board. This spring we invite visitors to see all the wonderful new features at the Garden, including the Kemper Center demonstration gardens, the Ruth Palmer Blanke Boxwood Garden, and the Margaret Grigg Nanjing Friendship Garden, which we will celebrate with a gala opening ceremony during the Chinese Festival, May 18 and 19.



Beginning on Memorial Day, enjoy the lovely summer evenings with extended Garden hours. This year our popular annual series of Wednesday evening concerts in June has grown into the Whitaker Jazz Festival, welcoming the entire community to hear some great music and picnic on the grounds. Our newest event, "EarthFriends Day," will be a delightful look at everyday things each of us can do to protect the environment, while having fun with the entire family. Don't miss any of the fun this summer!

— *Peter H. Raven, Director*

INFORMATION

24-Hour Information on Events:

GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions.

Or call 1-800-642-8842 toll free.

24-Hour Information on Gardening Topics:

HortLine – (314) 776-5522

You will need a touch tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below..

24-Hour Employment/Volunteer Hotline:

(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: (314) 577-5143

Monday through Friday, 9:00 a.m. to noon.

Master Composter Hotline: (314) 577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:

http://www.mobot.org

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m., every day except Christmas; 9 a.m. to 8 p.m., Memorial Day through Labor Day. Grounds open 7 a.m., Wednesdays and Saturdays.

Kemper Center for Home Gardening:

10 a.m. to 4 p.m. daily; Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop:

9 a.m. to 5 p.m. daily; 9 a.m. to 6:30 p.m. daily, Memorial Day through Labor Day. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:

Breakfast is available on Wednesday and Saturday mornings, 7 a.m. to 10:30 a.m.

Tower Grove House:

10 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 30 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. The Visitor Center is open 8 a.m. to 4:30 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. Admission is free for Garden members. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this *Bulletin* and mail to:

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On the Cover

Peonies stop the show in the Japanese Garden in May.
– Photo by Jack Jennings

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118

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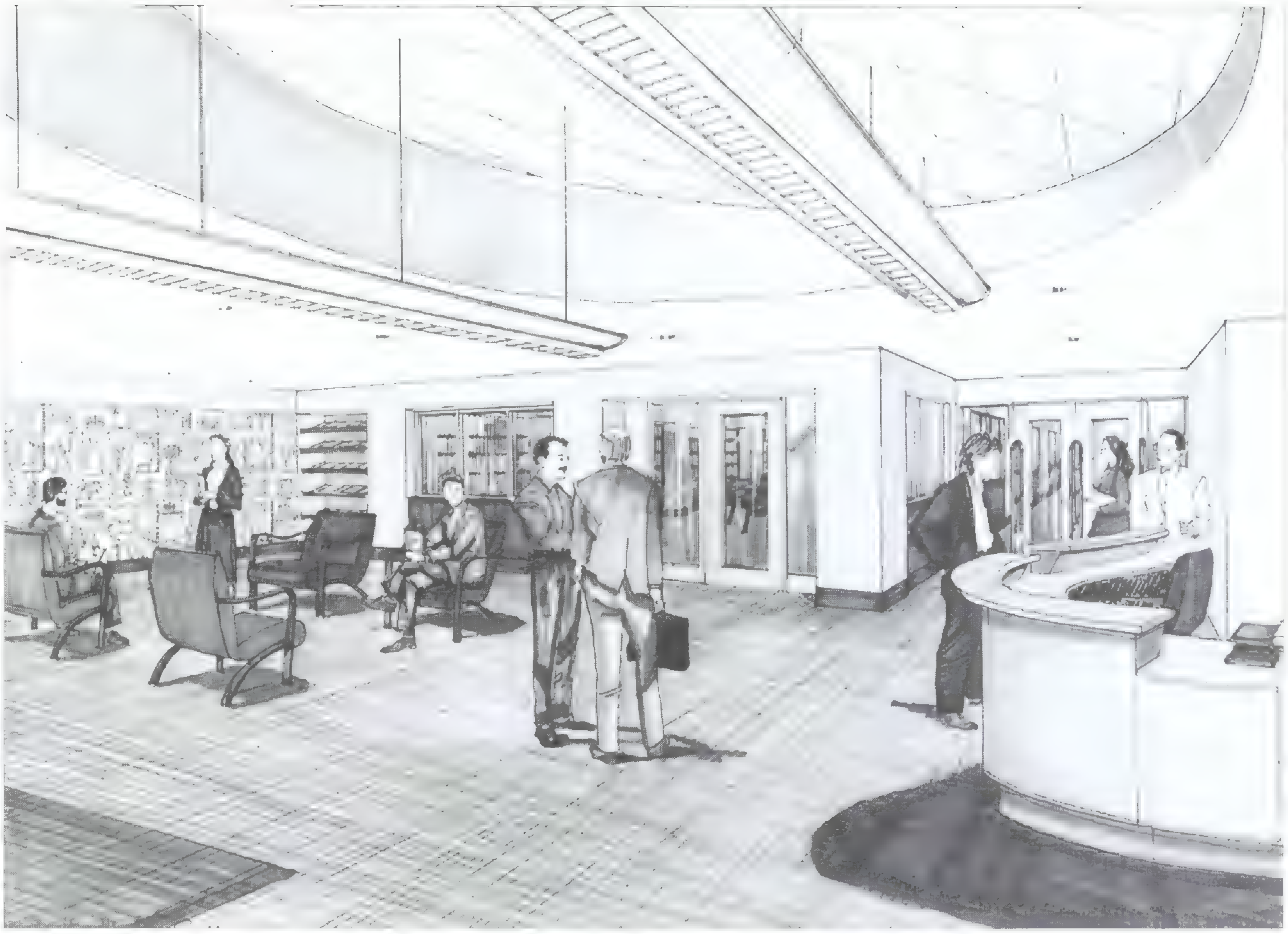
MISSOURI BOTANICAL
JUL 11 1996
GARDEN LIBRARY

Monsanto Makes Naming Gift for New Library

THE LIBRARY in the Garden's new research center will be called Monsanto Library through the generous support of Monsanto Company and Monsanto Fund. The Monsanto Library naming gift was announced April 20, 1996, during groundbreaking ceremonies for the research center (see next page). The library is the first major feature of the new building to be named under the Garden's Partnership Campaign.

In 1993, Monsanto Fund made the lead gift of $1 million toward the construction of the new research center. Monsanto Fund is the philanthropic arm of Monsanto Company, an international science and technology corporation with its headquarters in St. Louis. The 1993 gift was supplemented by a second million-dollar pledge in 1995 from Monsanto.



PETER SMITH

Rendering of the design for the Monsanto Library

> *"Great work will be done here for this neighborhood, for this city, and for the world — work that may help create a sustainable future for our children."*
>
> *— Robert B. Shapiro*

The Monsanto Library will occupy the entire top floor of the research center, which is currently under construction at the corner of Shaw and Vandeventer. The handsome new library will provide superb facilities and accessibility for the Garden's collection, which is ranked as one of the finest botanical libraries in the world (see "A World Class Library" in the March/April 1996 issue of the *Bulletin*, page 15).

Robert B. Shapiro, chairman and chief executive officer of Monsanto Company, noted in his keynote address at the groundbreaking ceremonies that the research center is a good example of how elements of sustainable development are being consciously pursued. "This building is being constructed with today's best sustainable design in energy efficiency and durability," Shapiro said. "It will be economical to run and healthy for the people who will work here. We are delighted that Monsanto will be part of this effort."

The new research center makes optimal use of sustainable construction techniques and materials, known as "green architecture." The project also promotes sustainability by reusing a neglected site in a city neighborhood. The building will house portions of the Garden's research program, a world leader in developing the scientific information needed to manage plants for the benefit of humankind.

The Monsanto Library continues a tradition of more than three decades of generous support for the Garden by Monsanto. During the past 30 years, the Fund and the Company have contributed generously for research efforts and special projects at the Garden, including employee matching gifts. Two other features at the Garden have been named in honor of significant donations by the company: Monsanto Hall, the great barrel vaulted space in the Ridgway Center, and Monsanto Gallery, the main exhibit space in the William T. Kemper Center for Home Gardening.

Dr. Peter H. Raven, director of the Garden, said, "The Garden and Monsanto have enjoyed a long and productive relationship based on our mutual concern with promoting beneficial uses of plants to society. We are very pleased and proud to acknowledge Monsanto's magnificent gift for our new library, which will help us to pursue these goals."

Monsanto has taken an active role in developing and employing sustainable environmental solutions. In March 1996, Vice President Gore presented Monsanto with an award from the President's Council on Sustainable Development for the company's "Pledge for a Sustainable Future" program, one of only 15 honored nationwide. The award represents the first time a presidential panel has honored local citizens and business leaders for their efforts to put sustainable development practices into action.

Above: Robert Shapiro and Jacob Evans of Gateway School. Right(left to right): David W. Kemper of the Garden's Board of Trustees, Xanthia DeBerry of Mullanphy ILC, Mayor Bosley, and Lance Bernard of Mullanphy ILC.

The Beginning of the Future

GROUNDBREAKING CEREMONIES

The research center is a focal point for the energy, talent, leadership, and financial strength of the St. Louis community.

THE GARDEN CELEBRATED EARTH DAY on April 20, 1996, with a luncheon to mark the beginning of construction on the new research center. Guests gathered at the building site at the corner of Shaw and Vandeventer, where construction began in late winter, to mark the beginning of a new era for the Garden, for the Shaw Neighborhood, and for St. Louis.

Speakers at the groundbreaking ceremonies included U.S. Senator Christopher S. Bond and St. Louis Mayor Freeman R. Bosley, Jr. The keynote address was delivered by Robert B. Shapiro, newly appointed chairman and chief executive officer of Monsanto Company. During the luncheon it was announced that Monsanto has made the naming gift for the library in the new research center (see page 3).

The Garden's research center embodies a united commitment to the future by the Garden and the community. Built within walking distance of the Garden grounds, the building will help to revitalize an urban neighborhood while remaining in harmony with its surroundings. The structure will preserve and protect the Garden's priceless herbarium and library for future generations and make them easily accessible. The innovative building will be a showcase of sustainable construction techniques, popularly known as "green architecture."

The Garden's internationally significant research programs help to supply the basic scientific information needed to develop new foods, new medicines, and answers to pressing environmental questions. The Garden works with the National Cancer Institute to find plants that may lead to treatments for cancer, AIDS, and other devastating diseases, and works with companies searching for a broad range of anti-viral and anti-fungal plants.

The Garden serves as headquarters for major international floristic studies, and its herbarium, library, and botanical databases are among the world's finest. It trains future botanists in collaboration with local universities and provides leadership to help strengthen scientific institutions worldwide.

The $19.4 million research center is the centerpiece of the Garden's $37 million Partnership Campaign. Several donors have made substantial gifts to support the campaign. In addition to the $2 million gift from Monsanto, $1 million pledges have been made by Emerson Electric Co., the Anheuser-Busch Foundation, and the May Department Stores Company. Other substantial contributors include the McDonnell-Douglas Foundation and Employees' Community Fund, the James S. McDonnell Founda-

Celebrating the beginning of an era of growth, scientific progress, and commitment to the sustainability of our global environment.

tion, Pet Inc., the Mallinckrodt Group, Inc., and Southwestern Bell. Two parcels of land on the building site were generously donated by Borden, Inc., and the Union Pacific Corporation, the latter in honor of Warren Shapleigh, a Garden Trustee.

Strong public support has come from the United States Department of Agriculture. The USDA followed an initial award of $734,000 for the research center with a grant of nearly $4 million, part of the 1995 Appropriations Bill signed by President Clinton. In 1994, the Garden received a challenge grant of $294,000 for the new library from the National Endowment for the Humanities.

A formidable team of experts has been working for more than two years to meet the challenges of creating the Garden's new research center, which is scheduled for completion in 1997. The team is led by the St. Louis architecture firm Christner, Inc., in association with Louis R. Saur & Associates, Inc. The Croxton Collaborative of New York City, national leaders in environmentally sustainable architecture, are consulting on the project.

Groundbreaking ceremonies for the research center marked the beginning of an era of growth, scientific progress, and continued commitment to the sustainability of our global environment.

Opposite page: Science students from Gateway School and the Mullanphy-Botanical Garden Investigative Learning Center joined civic leaders to make handprints in wet cement. The blocks will become a permanent part of the research center. This page, top: The construction site. Above, right: Peter Raven, Robert Shapiro (center), and Senator Bond. Right center: Guests viewed renderings of the new building. Right: Each guest received an oak tree seedling to take home. Here, Lance Bernard with his tree.

Board of Trustees Elects New Officers

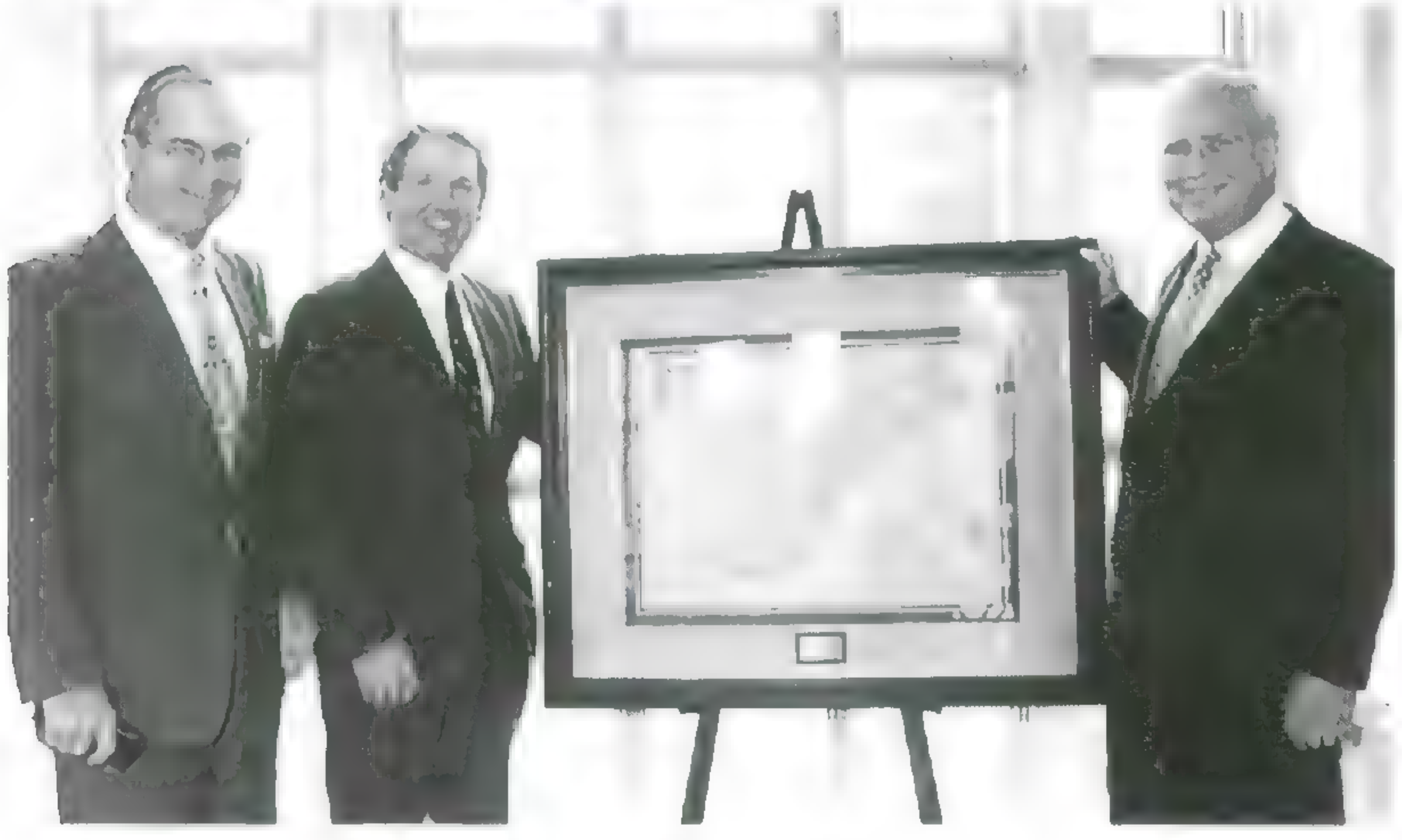
Left: New president of the Board William H. T. Bush (center) with Stephen F. Brauer (left) and David W. Kemper.

WILLIAM H. T. BUSH was elected president of the Garden's Board of Trustees at the annual meeting held February 21, 1996. David W. Kemper was elected as first vice president, and Stephen F. Brauer was elected second vice president.

Mr. Bush succeeds John K. Wallace, Jr. as president. During Mr. Wallace's three-year tenure, the Trustees have overseen a period of remarkable achievement for the Garden, including the construction of major new facilities, new educational exhibits and programs, publication of important scientific works, and the successful implementation of the largest capital campaign in the Garden's history.

Wallace Receives the Henry Shaw Medal

The Board of Trustees presented Mr. Wallace with the Henry Shaw Medal in honor of his outstanding service as president. Mr. Bush said, "I am honored to succeed John as president of this unique institution. The Garden has been blessed with active, caring trustees for many years, but few have contributed so much in so little time as John Wallace."



Left, top: John K. Wallace, Jr., with the Henry Shaw Medal.
At left: William H. T. Bush (left) and Peter Raven presented John Wallace with a framed map in recognition of his service as president of the Board of Trustees.

Term Trustees

The Board named Charles E. Kopman and James S McDonnell III as life trustees. Two term trustees, John W. McClure and Parker B. Condie, were elected to serve additional four-year terms.

The Board elected two new term trustees, Robert B. Shapiro and Pamela Ebsworth. Mr. Shapiro is the newly appointed chairman and chief executive officer of Monsanto Company. Mrs. Ebsworth is a retired travel industry executive and a member of the National Council of the World Wildlife Fund.

New Emeritus Trustees

E. Desmond Lee was elected to the Board as an emeritus trustee. Mr. Lee, founder and retired chief executive officer of the Lee/Rowan Company, established the E. Desmond Lee and Family Education Program in 1994 to promote science education in underserved St. Louis schools. Also named as Emeritus Trustees were Board members John K. Wallace, Jr., O. Sage Wightman III, and Richard J. Mahoney.

Tribute to Marion Piper

During the February meeting the trustees also honored Marion Piper for 15 years of service on the Board. Mrs. Piper joined the Board of Trustees in 1981, sharing with the Garden her strong interest in the history of our community and her commitment to preserving it. Mrs. Piper and her husband, Vernon, have given two spendid features for the Garden's Historic District. The Jennie Latzer Kaeser Memorial Maze, given in memory of Mrs. Piper's mother in 1986, is one of the most popular places in the Garden, especially with children. The Piper Observatory, which will open to visitors this year, overlooks the Maze and recreates a similar structure built by Henry Shaw in Tower Grove Park. Mr. and Mrs. Piper gave the Observatory in memory of Mr. Piper's parents, Frank and Julia Mohlman Piper.

Marion Piper

McDonnell Douglas Foundation Grant

A Living Classroom of Historic Trees

HISTORY CAME ALIVE on April 3, for children at Gateway Elementary, Gateway Middle, and Michael Schools in St. Louis as students from the second through the sixth grades planted 20 "Famous and Historic Trees" on their campus to create a "Living Classroom." The project was made possible by a grant from McDonnell Douglas Foundation.

The Garden helped McDonnell Douglas to coordinate the Famous and Historic Trees projects at two St. Louis schools, Gateway and the Mullanphy-Botanical Garden Investigative Learning Center. The program, which combines planting young, healthy seedlings grown from historically significant trees with lessons in history and ecology, is provided by American Forests, the nation's oldest non-profit conservation organization. Founded in 1875, the organization has planted millions of trees across America and raises funds to help conserve forests all over the world.

The Garden's Education Division provides science education programs at both Gateway and Mullanphy ILC. The Garden hosted a workshop, also sponsored by McDonnell Douglas, to help teachers prepare for the tree planting with lessons and classroom activities. Both schools plan to make their McDonnell Douglas Living Classrooms available to other schools for field trips.

The Garden helped the schools to choose the most appropriate trees for their Living Classrooms. Among the 20 trees selected are the George Washington Carver Green Ash, the Valley Forge River Birch, the John James Audubon Hackberry, the Thomas Edison Oleander, the Charles Lindbergh Red Maple, and the Martin Luther King Water Oak.

Third graders at Gateway School plant a young tree grown from an historic specimen. The Garden and McDonnell Douglas cooperated to plant Living Classrooms of Famous and Historic Trees at two St. Louis schools.

TIM PARKER

You & the Environment

MICDS STUDENTS VOLUNTEER AT THE GARDEN — In April, 25 ninth grade boys and girls from Mary Institute and Saint Louis Country Day School came to the Garden to lend a hand getting the grounds cleaned up for spring. The project was part of Community Involvement Day, with students from the school volunteering at 26 different organizations in the St. Louis area. After their volunteer service, the students share their experiences with their classmates as part of an ongoing program at the school to foster the spirit of community service and teamwork. Shown here, Zubin Segal (left) and Phil Wool, both class of 1999, plant flowers near the Climatron with Monica Dillon of the Horticulture Division staff.

New RCGA Study —

Cultural Institutions Are Major Economic Asset to St. Louis

A new study released in March by the St. Louis Regional Commerce and Growth Association (RCGA) found that St. Louis regional cultural institutions are not just assets to the quality of life in St. Louis, but have an overall economic impact of $1 billion annually.

Area cultural institutions directly spend $168 million annually and employ 2,935 workers. The institutions are estimated to generate $385 million in personal income and indirectly support 16,200 jobs. If the cultural institutions were grouped as one business, the jobs generated directly and indirectly would make it the third largest company in the area, the RCGA said.

Visitors to St. Louis cultural institutions in 1994-95 totaled 17.4 million, more than double the possible total attendance in one season of the St. Louis Cardinals, the St. Louis Blues, and the St. Louis Rams combined. The number of out-of-town visitors to St. Louis cultural institutions increased to 5.2 million in 1994-95, confirming that cultural attractions make a major contribution to the economy of the St. Louis area.

Home Gardening

CONTAINER GARDENING

FOR VERSATILITY and creativity, container gardening provides limitless possibilities. You can choose from annuals, perennials, tropicals, vegetables, trees, and shrubs; just follow a few simple rules for success.

Location

Containers work well almost anywhere as long as you select the proper plants for the location. Don't overlook placing a pot in a flower bed where you want to add a particular color or texture.

Materials

Whatever type of pot you choose, make sure it has proper drainage. Drill holes if necessary, or double pot by placing a container with drainage holes inside a decorative pot with a layer of coarse gravel in the bottom.

Unglazed clay pots are heavy and dry out more quickly then other pots, but their traditional look is attractive. Remove soil from terra cotta pots in the fall and store them in a dry location.

The life expectancy of wood containers depends on the type of wood. Redwood is expensive, but it will last several years. Cedar and oak should last three or four years, or longer if treated with a wood preservative safe for plants. Pressure treated lumber will last many years, but opinions differ on its safety since it contains arsenic. The best way to extend the life of wooden containers is to use a plastic liner or double pot.

Versatile plastic pots are considerably lighter than other materials, which is important with large plants. Where appearance is not important and the pot is not exposed to direct sun, reused black nursery pots work well. In full sun, black pots can cause the soil to overheat and damage plant roots. Plastic is a good choice for perennials and small trees that need to be overwintered in their containers.

Pot size is important for regulating soil moisture. Choose a size that allows you to water small plants once a day and large pots daily or every other day during the summer. Watch your plants closely in rainy weather and hold back on watering if the soil is damp.

Soil

It is never a good idea to use soil straight from the garden, as it compacts easily and can contain harmful insects and other organisms.

Commercial "soil-less" mixes make container gardening easy and almost foolproof. The mixes are light, retain moisture yet drain well, and are free of insects and pathogens. I have also made a blend of equal parts compost, peat moss, and perlite or vermiculite, plus a handful of lime for each bushel of mix, with good results. Add a time-released fertilizer if your mix does not already contain fertilizer.

Summer Care

During the growing season, regular watering and fertilizing are important for growing healthy container plants. If you do not use a time-released fertilizer, apply a water soluble fertilizer such as 10-10-10 according to label directions every one or two weeks. Every other week, before you fertilize, water the pots copiously to leach out salts that accumulate from hard water and fertilizer. A two-inch layer of mulch in each pot will help reduce water loss.

Plant Selection

Containers will allow you to grow many herbs and rock garden plants that often fail in St. Louis's heavy clay soil. You can also grow tender plants outdoors for the summer, such as bay laurel or rosemary, and take them inside in the fall. Just remember to match your plants' light requirements with the location of the container. Also plan to replace cool season plants with more heat tolerant plants when summer arrives.

Combinations

Most annuals are easy to grow and provide lots of color. Pair them with complementary foliage plants for striking containers. Use plants that flower at different times or replace early blooming, cool-season plants with more heat tolerant selections as the weather gets hot. Consider the rate of growth too, or you will be constantly cutting back some plants to give the others a fighting chance.

Most often I find myself growing only one or two different kinds of plants per pot and grouping containers together to create interesting colors and textures. Remember that intricate plantings are most effective at close range.

Tropical Plants

Tropical perennials, vines, trees, and shrubs make excellent container plants for a hot deck in St. Louis. You can treat them as annuals, or enjoy them year after year if you're willing to do the work. Tropicals brought indoors for the winter require space and good light to pull through. An easier solution is to take cuttings in midsummer and tend the cuttings indoors through the cold months. Cuttings can more easily be freed of insect pests than larger plants, an added advantage. Some of my favorite tropicals

Recommended Container Combinations

St. Louis Master Gardener Jill Schroer creates containers that draw *oohs* and *aahs* from her students. Here are some of Jill's suggestions for striking combination plantings:

For Sun

- Snowbush, *Breynia disticha* 'Rosea-Picta,' with 'Domino' nicotianas in pink, white or green and 'Sparkle' ivy
- 'Coral Nymph' salvias with 'Salmon Beauty' nicotianas and licorice plants, *Helichrysum minus*
- Ornamental peppers and tricolor sage
- 'Lady in Red' salvias and white verbenas attract green finches and hummingbirds.
- 'Sunny Border Blue' veronicas with French marigolds and 'Crystal Palace' lobelias
- Lantanas and golden creeping oregano
- 'Purple Rain' salvias and 'White Star' zinnias attract finches.
- Geraniums and gerber daisies, both in salmon pink
- Bacopa is wonderful in window boxes with licorice plants, *Helichrysum minus.*
- 'Sunny Border Blue' veronicas with *Melampodium* and 'Crystal Palace' lobelias
- Creeping zinnias, *Sanvatalia*, and 'Bright Lights' cosmos

For Shade

- 'Little Miss Muffet' caladiums with impatiens and fuschia make beautiful window boxes.
- *Hypoestes* 'Pink Splash' and 'Gin' begonias
- 'Lime Wizard' coleus with yellow lantanas and white begonias
- Lady's mantle, *Alchemilla*, with any medium-sized hosta
- Pink 'Elfin Stripe' impatiens with 'Rosamund' lobelias and coleus
- 'Lime Wizard' coleus and 'Crystal Palace' lobelias

continued —

at present include *Duranta repens, Cuphea hyssopifolia, Murray paniculata, Cherimoya,* clerodendrons, lantanas, and ixoras.

Hardy Plants

Nurseries and garden centers grow many of their hardy perennials, trees, and shrubs in containers, so why not do the same at home? I am currently growing dawn redwood, lacebark elm, hardy bamboo, and roses in two-foot pots. Each spring I prune the tops to keep them to the size I want. Every two or three years I unpot the plants and remove the roots encircling the bottom. This promotes development of a more fibrous root system and also prevents the roots from enlarging and splitting the pot. It is also a good idea to shave off about an inch of soil around the root ball and replace it with new soil.

Over-Wintering Hardy Plants

It is a challenge to bring hardy container-grown plants through the winter. Move the plants to a protected, shady area where they can be grouped together and surrounded with a wire fence about three feet high. Fill the enclosure with a mulch of nonpacking leaves such as oak or straw. Water the pots well, but do not let them get soggy. The real dangers in St. Louis winters are rapid freezing and thawing and wet soil, which can promote root rot.

For literally hundreds of ideas on using containers and striking combinations, I recommend *Landscaping with Container Plants* by Jim Wilson and *The Book of Container Plants* by Malcolm Hillier. Both can be viewed in the Kemper Center for Home Gardening's reference library or purchased in the Garden Gate Shop. The bookstore also carries a wide selection of other excellent books on container gardening.

—Glenn Kopp, Adult Education Coordinator

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	*David Brown*	727-2385
Belleville Area Rose Society	*Dennis Nelson*	618-233-4609
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Sue Reed*	965-6813
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
West County Daylily Club	*Roy Bohrer*	240-8780

Home Gardening

CONTAINER GARDENS

Mildred Lane Kemper Terrace Garden

VISITORS to the Terrace Garden will find a wealth of ideas for their own gardens. The patio is an ideal place to display a wide variety of container plants. (See "Container Gardening," pages 8–9.)

This summer the Terrace Garden containers are featuring *Verbena* 'Homestead Purple' and 'Carousel,' *Lantana montevidensis* 'Purple,' *Helichrysum petiolara* 'Rondello,' and Persian shield, *Strobilanthes dyerianus*.

Trees add an important dimension to smaller garden designs if the plants are the appropriate size. Some ideal choices on display in the Terrace Garden are sweet bay magnolia, *Magnolia virginiana* var. *australis*, and Japanese maple, *Acer palmatum* 'Bloodgood.' Sweet bay magnolia is evergreen in all but the coldest winters. Here it is planted in a protected location sheltered from north winds.

Vines also help to soften architectural features and enhance vertical and overhead spaces. The Terrace Garden features both flowering and ornamental foliage vines.

The wide selection of low growing perennials and dwarf shrubs soften the brick walls on two sides of the Terrace Garden and make an attractive division between the patio and lawn. The combination of evergreens, deciduous shrubs, ornamental grasses, herbaceous perennials, and bulbs create a variety of colors and textural interest through the seasons. The plants on display are listed below.

Dwarf deciduous shrubs
- Bluebeard, *Caryopteris x clandonensis* 'Worcester Gold'
- Sweet pepperbush, *Clethra alnifolia* 'Hummingbird'
- Witch alder, *Fothergilla gardenii* 'Compacta'
- St. John's wort, *Hypericum calycinum*
- Japanese spirea, *Spiraea japonica* 'Limemound'
- European cranberry bush, *Viburnum opulus* 'Nanum'
- *Weigela* 'Olympiad'

Dwarf evergreens
- False cypress, *Chamaecyparis pisifera* 'Sungold'
- Eastern white pine, *Pinus strobus* 'Macopin' and 'Nana'
- Canada hemlock, *Tsuga canadensis* 'Gentsch White'

Grasses
- Eulalia, *Miscanthus sinensis* 'Morning Light'
- Fountain grass, *Pennisetum alopecuroides* 'Hameln'
- Ravenna grass, *Saccharum ravennae*

Perennials
- Spiny bear's breeches, *Acanthus spinosus*
- Astilbe, *Astilbe x arendsii* 'Red Cattleya'
- Daylilies: *Hemerocallis* 'Baltimore Oriole,' 'Fly Catcher,' 'James Marsh,' 'Mini Stella,' 'Mission Moonlight,' 'Northbrook Star'

Bulbs
- Lilies: *Lilium* 'Connecticut King,' 'Enchantment,' 'Orange Brushmark'
- Daffodil: *Narcissus* 'Petit Four'

Vines
- Kiwi vine, *Actinidia kolomikta*
- *Clematis* 'Fireworks,' 'Henryi'
- *Clematis spooneri*
- Silver lace vine, *Polygonum aubertii*
- Japanese wisteria, *Wisteria floribunda* 'Macrobotrys'

We invite you to visit the wonderful new demonstration gardens at the William T. Kemper Center for Home Gardening, which showcases plants especially suited for the St. Louis climate. In this new series, we offer a detailed look at each garden from the staff experts who planned the landscaping , including how the plants were selected and why. Below is a key to the labels you will see on plants in the demonstration gardens.

Light Requirements:

☼	◐	✹	◑	●
Full Sun	Full Sun to Part Shade	Part Shade	Part Shade to Full Shade	Full Shade

Moisture Requirements:

○	◐	◍	◑	●
Dry	Dry to Med. Wet	Medium Wet	Medium Wet to Wet	Wet

Care and Maintenance

♡	♥	❤
Low Maintenance	Medium Maintenance	High Maintenance

The Coinco Summer Plant House

THE SUMMER PLANT HOUSE really comes into its own in summertime as the Kemper Center's principal outdoor education facility. Demonstrations in May and June will feature container gardening techniques.

The airy, open-sided structure washed in dappled shade is an ideal place for summering houseplants outdoors. For demonstrations, the shelter has convenient plant bleachers and a durable work surface with running water and efficient drainage.

Hanging baskets filled with colorful annuals and foliage suitable for partial shade will be part of the educational display. Plants in the containers will change with the seasons.

Saturday "Work & Tell" Demonstrations

10:30 a.m. to noon

Each Saturday from May through August, St. Louis Master Gardeners will conduct informal drop-in demonstrations of practical gardening techniques in the Summer Plant House. Reservations are not required, and you can stay as long as you like. You may even be put to work!

May: **Container Gardening**
June: **Herbs for Containers**
July: **Children's Activities**
August: **Cut & Dried Flowers**

Raven Receives United Nations Environment Prize

Dr. Peter H. Raven, director of the Garden, has been awarded the 1995 United Nations Environment Programme (UNEP) Sasakawa Environment Prize for outstanding contributions to protection and management of the world environment. The award was presented to Dr. Raven at a ceremony in St. Louis on February 28, 1996.

The Sasakawa Environment Prize is one of the most prestigious and valuable environmental prizes in the world, recognizing the work of leading environmentalists at the global level. UNEP works in partnership with the UN Food and Agriculture Organization to address the problem of tropical forest depletion and is the administrator of the new Convention on Biological Diversity, an international agreement established at the Rio Earth Summit in Brazil in 1992 which today involves 138 countries.

Dr. Raven and Dr. Norman Myers of the United Kingdom shared one half of the $200,000 UNEP Sasakawa Prize. Both scientists have worked for nearly three decades to investigate, document, and analyze the scientific basis of two major environmental problems: the decline of tropical forests and the worldwide loss of biodiversity. Dr. Raven and Dr. Myers are widely credited with alerting the global community to the emerging crises of tropical deforestation and mass extinction.

The other half of the 1995 UNEP Sasakawa Prize was awarded to the renowned scientist Professor Canaganayagan Suriyakumaran of Sri Lanka, whose groundbreaking work has helped to shape the response to environmental challenges. Prof. Suriyakumaran and Dr. Myers received their awards at a ceremony in Bankok, Thailand.

Peter Raven with Joanne Fox-Przeworski, director of the UNEP Regional Office for North America, who presented the award.

William H. Danforth, chairman of the board of Washington University, spoke at the award luncheon held in Dr. Raven's honor. Dr. Danforth said, "The UNEP Sasakawa Environment Prize is not just a commendation.... it is also an encouragement for these initiatives to continue, to be intensified.... In honoring you, we seek inspiration for our own work."

Update – Saving the Komarov

In 1993, the Garden assumed a leadership role in the effort to protect the priceless research collections at the Komarov Botanical Institute in St. Petersburg, Russia, which were threatened by structural deterioration of its buildings. (See the *Bulletin*, January/February 1993, page 3.) With generous support from the International Science Foundation, U.S. Agency for International Development, and private foundations and individuals, the first and most urgent phase of the project has been completed.

The Komarov Institute is one of the world's leading resources for botanical research. It houses a botanical garden founded in 1714 by Peter the Great, the third largest herbarium in the world, an outstanding library, and irreplaceable collections of both dried and living plants.

In 1993, the Garden secured funding for a detailed study of the physical condition of the Institute and commissioned Sverdrup Corporation to assess the situation and set priorities for repairs. The most urgent needs were new boilers and pipes, fire protection systems, new electrical wiring, repairing the roof and exterior walls, replacing broken windows, and installing new water and sewage systems.

Thanks to magnificent support from the international scientific community, donors, and foundations, the urgent repairs have been completed. "We would like to thank all those who have joined in this effort," said Dr. Nancy Morin, assistant director of the Garden. "We can all be proud to be playing a part in saving the Komarov collections for future generations."

Top: The Komarov Botanical Institute in St. Petersburg, Russia, as it looks today. Above: Restoring the roof.

Calendar

May 4 & 5 Saturday & Sunday

African Violet Show

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. The Metropolitan St. Louis African Violet Council presents its 41st annual juried show and sale, "Victorian Violets." Free with Garden admission.

May 5 Sunday

Miniature Rose Sale

9 a.m. to 5 p.m., Beaumont Room. The Rose Society of Greater St. Louis offers miniature rose plants for sale. Proceeds benefit the Garden.

May 9 – 19 Thursday – Sunday

Chinese Art Exhibit

9 a.m. to 5 p.m., Ridgway Center. Selected works by Chinese and Chinese-American artists. Free with Garden admission.

May 10 Friday

Mother's Day Luncheon

Noon, under the outdoor tent; seating begins at 11:45. Luncheon, featuring spring fashions by Dillard's. $40 per person for members, $50 per person for non-members. Call 577-9500 for reservations.

May 11 Saturday

O'Fallon Iris Society

9 a.m. to 5 p.m., Orthwein Floral Hall. Hundreds of entries in a juried show and sale. Free with Garden admission.

May 12 Sunday

Greater St. Louis Iris Society Show

9 a.m. to 5 p.m., Orthwein Floral Hall. A rainbow of blooms and arrangements in a juried show. Free with Garden admission.

May 18 Saturday

Opening Ceremony for the Chinese Garden

10:30 a.m., Margaret Grigg Nanjing Friendship Garden. Celebrate the public opening of the most authentic Chinese garden of its size in the United States. Traditional lion dance, music, fireworks, and more. Free with Garden admission.

May 18 & 19 Saturday & Sunday

St. Louis Horticulture Society Show

9 a.m. to 5 p.m. daily, Orthwein Floral Hall. A juried exhibition of vegetables, flowers, roses, and more. Free with Garden admission.

May 23 Thursday

Sherman LeMaster Photography Exhibit

9 a.m. to 5 p.m. daily through June 22, Monsanto Hall. Photographs featuring the Missouri Botanical Garden by St. Louisan Dr. Sherman LeMaster. Free with Garden admission.

May 24 Rose Evening

5:30 to 8:30 p.m., grounds. Come enjoy the beauty of the Gladney and Lehmann Rose Gardens, discuss rose care with the horticulture staff, receive a long stemmed rose, and more! Entertainment, cash bar. An optional dinner buffet is available by advance reservation only at the Gardenview Restaurant, $20 per person. Dinner reservations must be received by May 21, 1996. Rose Evening will not be cancelled in case of rain. Free, for members only. See the invitation mailed recently to all members.

May 18 & 19 Saturday & Sunday Chinese Festival

10 a.m. to 5 p.m. daily, grounds. The fourth annual celebration of Chinese culture at the Garden offers a colorful introduction to Chinese music, arts, crafts, and cuisine, including the opening ceremony and guided tours of the Margaret Grigg Nanjing Friendship Garden.

SATURDAY: 1 and 3 p.m.: stage performances of music and dancing; Chinese arts and crafts. Noon to 4 p.m., Chinese food booths.

SUNDAY: Noon to 5 p.m., World Ways Children's Museum of St. Louis presents exhibits, games, and puppet shows. 12:30 p.m., slide lecture on the building of the Chinese garden by UM–St. Louis art historian Juliana Yuan in Shoenberg Auditorium. 1:30 p.m., concert by Rohan Woods School at the Chinese garden. 2 p.m., cooking demonstration at Kemper Center.

Fees will be charged for some performances. Chinese cultural activities are co-sponsored by the Garden and the St. Louis Chinese community.

May 25 & 26 Saturday & Sunday

Rose Society Show

Noon to 5 p.m. Saturday, 9 a.m. to 5 p.m. Sunday, Orthwein Floral Hall. The Rose Society of Greater St. Louis presents its annual show, featuring over 1,000 roses of all types, including the newest varieties. Free with Garden admission.

May 30 Memorial Day

Summer Hours Begin

The Garden will be open to visitors from 9 a.m. to 8 p.m. through Labor Day. Come and enjoy a quiet stroll on a beautiful summer evening.

June 1 & 2

Saturday and Sunday

Federated Garden Clubs Show

1 to 8 p.m. Saturday, 9 a.m. to 7 p.m. Sunday, Orthwein Floral Hall. The East Central District - Federated Garden Clubs of Missouri presents "Parfum," a juried flower show with exhibits of flower design and horticulture, celebrating National Garden Week. Free with Garden admission.

June 1 – 21

Saturday – Friday

Exhibit: "History of African Americans in Missouri, 1719 – Present"

9 a.m. to 8 p.m. daily, Ridgway Center. The Garden presents a special exhibit by The Black Archives of Mid-America, Inc., of Kansas City, sponsored by the Missouri Lottery. The pictorial history portrays the evolution of Missouri statehood and the people who helped to shape the present day. In conjunction with the Whitaker Jazz Festival, the exhibit will include a special section of photographs of well-known jazz artists from Missouri. Free with Garden admission.

June 3 Monday

Plant Clinic

10 a.m. to noon, Kemper Center. Walk-in consultations with experts from the Garden's horticulture staff, Master Gardeners, University Extension, and Missouri Department of Conservation. Free with Garden admission.

Garden Tour

1996

June 9 Sunday

Garden members are invited to spend the day touring some of the loveliest private gardens in St. Louis. End the day with a very special Finale Party at a private home that is not part of the day's tour. Advance reservations are required; watch the mail for your special invitation.

June 5 Wednesday

Whitaker Jazz Festival: The Bosman Twins

7:15 to 9:30 p.m., Cohen Amphitheater. See back cover for details.

June 12 Wednesday

Whitaker Jazz Festival: Pieces of 8

7:15 to 9:30 p.m., Cohen Amphitheater. See back cover for details.

June 15 & 16

Saturday & Sunday

Lily Society Show

Noon to 8 p.m. Saturday, 9 to 8 p.m. Sunday, Orthwein Floral Hall. The Mid-America Regional Lily Society (MARLS) presents its annual show. Free with Garden admission.

June 17 Monday

Plant Clinic

10 a.m. to noon, Kemper Center. See June 3 for details.

June 19 Wednesday

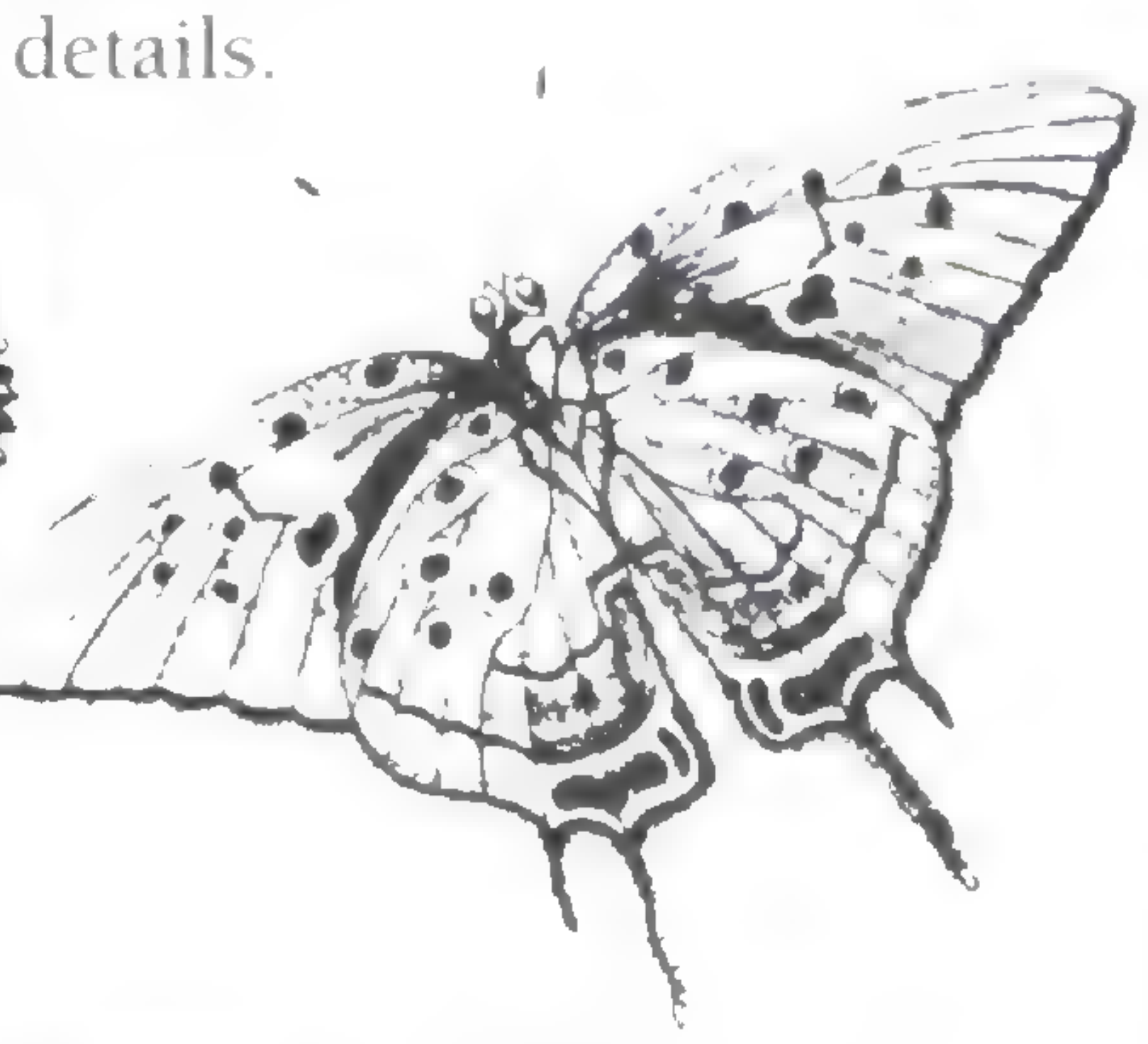
Whitaker Jazz Festival: Paul DeMarinis and Brilliant Corners

7:15 to 9:30 p.m., Cohen Amphitheater. See back cover for details.

June 26 Wednesday

Whitaker Jazz Festival: Sherry Drake with Eddie Plitt and Don Krasulak

7:15 to 9:30 p.m., Cohen Amphitheater. See back cover for details.



June 23 Sunday

"EarthFriends" Day

Noon to 5 p.m., Ridgway Center and grounds. Boost your environmental awareness with useful and fun tips on things you can do every day to help protect the Earth, including ideas for planet-friendly transportation, cleaning products, gardening techniques, and recycling. Enjoy demonstrations on composting, papermaking, and home recipes for grooming products and household cleaners from the St. Louis Herb Society and Willow Rain Herbal Goods. Children can plant seeds in reusable egg cartons, decorate flower pots, and enjoy storytelling, Recycle Roundup, and the Earthways Energy Cycle — see how much electricity it takes to turn on a light bulb. Plus exhibits of "green" products, displays, and lots more! Free, with Garden admission.

Members' Days

May 1 Wednesday

Purple Martin Evening

6:30 p.m., Shoenberg Auditorium and grounds. Celebrate springtime with a lecture and film presented by W. Ashley Gray III, curator of purple martins, and stroll through the Garden's purple martin neighborhood. Free, for members only. Cash bar.

June 14 Friday

Members' Musical Evening

5:30 to 9 p.m., grounds. Take a sentimental journey under the stars with the Gateway City Big Band. Concert begins on Spoehrer Plaza at 7:30 p.m. Bring a picnic supper, blankets or lawn chairs if desired. Limited concert seating is provided on a first-come, first-served basis. Free, for members only. Cash bar.

June 30 Sunday

Daylily Society Show and Sale

Show: noon to 5 p.m., Orthwein Floral Hall; Sale: 9 a.m. to 5 p.m. or until all plants are sold, Beaumont Room. The West County Daylily Society presents its colorful annual show and sale. Admission is free with Garden admission.

July 3 Wednesday

Whitaker Jazz Festival: Tim Whitmer and KC Express

7:15 to 9:30 p.m., Cohen Amphitheater. See back cover for details.

1996 MEMBERS' TRAVEL PROGRAM

"The Gardens of China"

SEPTEMBER 5 – 20, 1996

Garden members are invited to take the trip of a lifetime — the chance to tour "The Gardens of China," led by the Missouri Botanical Garden's director of horticulture, Dr. Shannon Smith. Many members have already had a glimpse of the splendors of Chinese gardens in the new Margaret Grigg Nanjing Friendship Garden, the largest authentic outdoor Chinese garden in the United States.

Landscape design has been central to Chinese culture for 2,500 years. This tradition is exemplified by the magnificent gardens you will visit with The Gardens of China tour. Highlights of the trip include the beautiful and ancient cities of Beijing, Nanjing, Wuxi, Suzhou, Shanghai, Hanzhou, and Hong Kong, with a visit to the Great Wall. A banquet and an evening of traditional musical entertainment will be hosted just for the tour by the Foreign Affairs Office of the Nanjing Municipal People's Government.

The Garden has had close ties with Chinese botanical institutions for more than two decades. Nanjing and St. Louis were the first U.S.-Chinese sister cities, and the Jiangsu Botanical Institute and Botanical Garden mem. Dr. Sun-yat-sen in Nanjing is our sister botanical garden. Several features in our new Grigg garden were gifts from the city of Nanjing; in return, the Garden and St. Louis gave a children's playground to the city. In addition, the Garden serves as U.S. headquarters for the Flora of China, a joint Sino-American project to update and publish the massive account of Chinese plants for the first time in English.

Dr. Smith has made two trips to China to study traditional plantings. He will be a knowledgeable host for this extraordinary travel opportunity.

For information and reservations, please call Judy Peil Travel, (314) 726-2577, or Brenda Banjak, (314) 577-9517.

1997 TRAVEL OPPORTUNITY

"Thailand, the Land of Smiles"

Trip Preview: Tuesday, May 7 7:00 p.m.

Spend 16 magical days in Thailand next February 8 through 23, 1997, led by Glenn Kopp, the Garden's adult education coordinator. Kopp lived in Thailand for three years as a Peace Corps volunteer, teaching horticulture at a teachers' college.

Highlights of the trip include Bangkok; Khao Yai, one of Thailand's first and largest national parks; hikes in pristine wilderness; the breathtaking wonders of Khao Sok National Park, known for its hornbills, leopards, Malayan sun bears, elephants, and dramatic cliffs, caves, and waterfalls; the rain forest ecosystem of Phang Nga Bay; and exotic Phuket.

Trip extensions are available. For further information call 314-577-5148.

Thank You to GardenExpo Sponsors –

GrandPa's
Peters Plant Food

We extend our warmest appreciation to GrandPa's and Peters Plant Food, the sponsors of this year's GardenExpo held April 27 and 28.

Members Get Free Benefits at Other Botanical Attractions

When you plan your next vacation, call the Membership Office at (314) 577-9500 to request a list of arboreta, botanical gardens, and conservatories that offer free reciprocal admission and additional benefits to members of the Missouri Botanical Garden. Published annually by the American Horticultural Society, the list includes dozens of beautiful places throughout the United States and Canada. Don't forget to take advantage of this free benefit of Garden membership!

1995 Annual Report – The Year in Review

The 1995 Annual Report of the Missouri Botanical Garden is available on request. You may pick one up during hours the Garden is open to visitors at the Ridgway Center, 4344 Shaw Boulevard. You may also obtain a copy in the lobby of the Shoenberg Administration Building, 2345 Tower Grove Avenue, 8:30 a.m. to 5 p.m., Monday through Friday. If you cannot visit the Garden, please call the Development Office, (314) 577-5120 to request a copy.

Highlights of 1995

As of December 31, 1995

Partnership Campaign	
Goal	$ 35,000,000
Total to date	$ 27,038,030
Members' Entry Court at the William T. Kemper Center	
Totals to date:	
Signature bricks:	61
Engraved clay bricks:	880
Membership	
Members	32,002
Membership Services Desk:	
Memberships sold:	6,750
Visitors	
Garden attendance:	734,783
Arboretum:	45,000
Education Division	
Total participants:	108,580
Children	91,256
Adults	15,322
Teachers	2,002
Research Division	
Total specimens in herbarium collection:	4,591,434
Specimen records in TROPICOS:	1,001,563
Library volumes:	119,000
Graduate students:	25
Horticulture Division	
Answer Service calls:	27,171
HortLine calls:	12,623
Staff & Volunteers	
Staff	
Full-time:	302
Part-time:	39
Volunteers:	895
Hours of service:	76,644

A Lasting Gift

Marian (left) and Ethel Herr

WHEN Ethel and Marian Herr decided to make a substantial gift to the Garden, they knew they wanted to give something that would benefit future generations. This spring, the twin sisters each gave $5,000 to support the purchase of rare and special books for the Garden library.

"Education and knowledge last forever," Marian said, "and books were always very important in our family. We loved seeing the collection of beautiful volumes in the Garden's rare book room and talking with the staff of the library. It seemed like something very worthwhile to do."

The Herr twins have been volunteers in the Development Office for the past 15 years, where they keep track of tribute gifts and matching gifts. The extensive lists of tributes published in each issue of the Bulletin are meticulously prepared by Ethel and Marian, who often put in many extra hours on the job. In recognition of their work, Marian and Ethel were honored at Volunteer Evening in 1992 with the Commitment Award.

The sisters have lived together all their lives. For the past 65 years they have shared the home their parents built in South St. Louis. After graduating from Cleveland High School and Brown Business School in 1937, they worked as secretaries until their retirement. They couldn't wait to start volunteering at the Garden. "Because we grew up nearby, the Garden has always been one of our favorite places," Ethel said. "Daddy used to bring us here after church on Sundays while Mother was fixing dinner. The "Before and After" garden display, where the Climatron is now, was our favorite!"

Marian said, "Ethel retired in July of 1981 and started volunteering at the Garden right away. I retired the following year, and she gave me two weeks off before I started at the Garden!" The twins lead busy lives; they are active in their church and their garden and take annual trips abroad. And they never miss their day at the Garden, even during the blizzards when no one else arrives.

Ethel and Marian are a living resource of St. Louis history. In addition to their gift to the Garden library, they donated their father's memorabilia from the 1904 World's Fair to the Missouri Historical Society this year. Some of the booklets, cards, posters, and postcards will be used in the Society's exhibit "Meet Me at the Fair," which will open in June. Ferdinand Herr was 14 years old during the fair and collected the souvenirs while riding the trolley to the fairgrounds after school as a delivery boy.

Ethel and Marian Herr have made an important contribution to the Garden with their time, their skills, and their cheerful presence. Their recent gift to the library is extraordinarily generous and will allow the Garden to add valuable volumes to the collection that will benefit scholars today and in future generations.

GARDEN GATE SHOP

Summer Hours — Beginning Memorial Day, the Shop will be open Monday through Thursday and on Sunday: 9 a.m. to 6:30 p.m.; Friday and Saturday: 9 a.m. to 7 p.m. And remember — all proceeds from the Garden Gate Shop benefit the Garden.

May 12

Mother's Day

Blooming plants, hanging baskets, tropical plants, silk and dried flowers, botanical personal products, jewelry, and more. Also, special inscriptions for mothers and grandmothers on many wonderful gifts.

May 24

Rose Evening

- Author Maggie Oster will be signing copies of *The Rose Book.*
- Exhibits by artists
- Experts from the Rose Society
- New MBG Video — *Roses.*

June 8

Preview: Gardens of the Heartland

2 p.m., Shoenberg Auditorium. Noted garden writer Laura C. Martin will present a 30-minute lecture, "A Celebration of Gardens," and sign copies of her new book, *Gardens of the Heartland.* This is the first stop on the tour for this exciting new book!

New! Custom Gift Baskets

To create a special, one-of-a-kind gift just right for Mother's Day or Father's Day, let the Garden Gate Shop design a basket filled with beautiful flowers, plants, dried blossoms, or some of the Shop's delightful personal products, foods, garden accessories, stationery, anything you can think of! For a wonderful gift that can't be found anywhere else, call the Garden Gate Shop and ask for Jill Munoz at (314) 577-5152 or Christa King at (314) 577-5137.

June 14 — Members' Day

Members' Musical Evening

Members will receive a total of 15 percent off all garden bells and chimes, music boxes, and any CD or tape in the Shop!

June 16

Father's Day

Garden tools and accessories, books, tie tacks and cuff links, gourmet foods, botanical aftershave, and more.

June 5, 12, 19, 26, and July 3

Whitaker Jazz Festival

The Shop will be open until the concert begins. New: Whitaker Jazz Festival Tee Shirts, plus picnic baskets and accessories.

June 23

EarthFriends Day

Woodstock Conservation Chimes and Rainforest Chimes will donate a portion of every sale to help plant trees and support damaged ecosystems. With every purchase of $10 or more from Environmentally Sound Products, customers will receive a free MBG environmental coloring book.

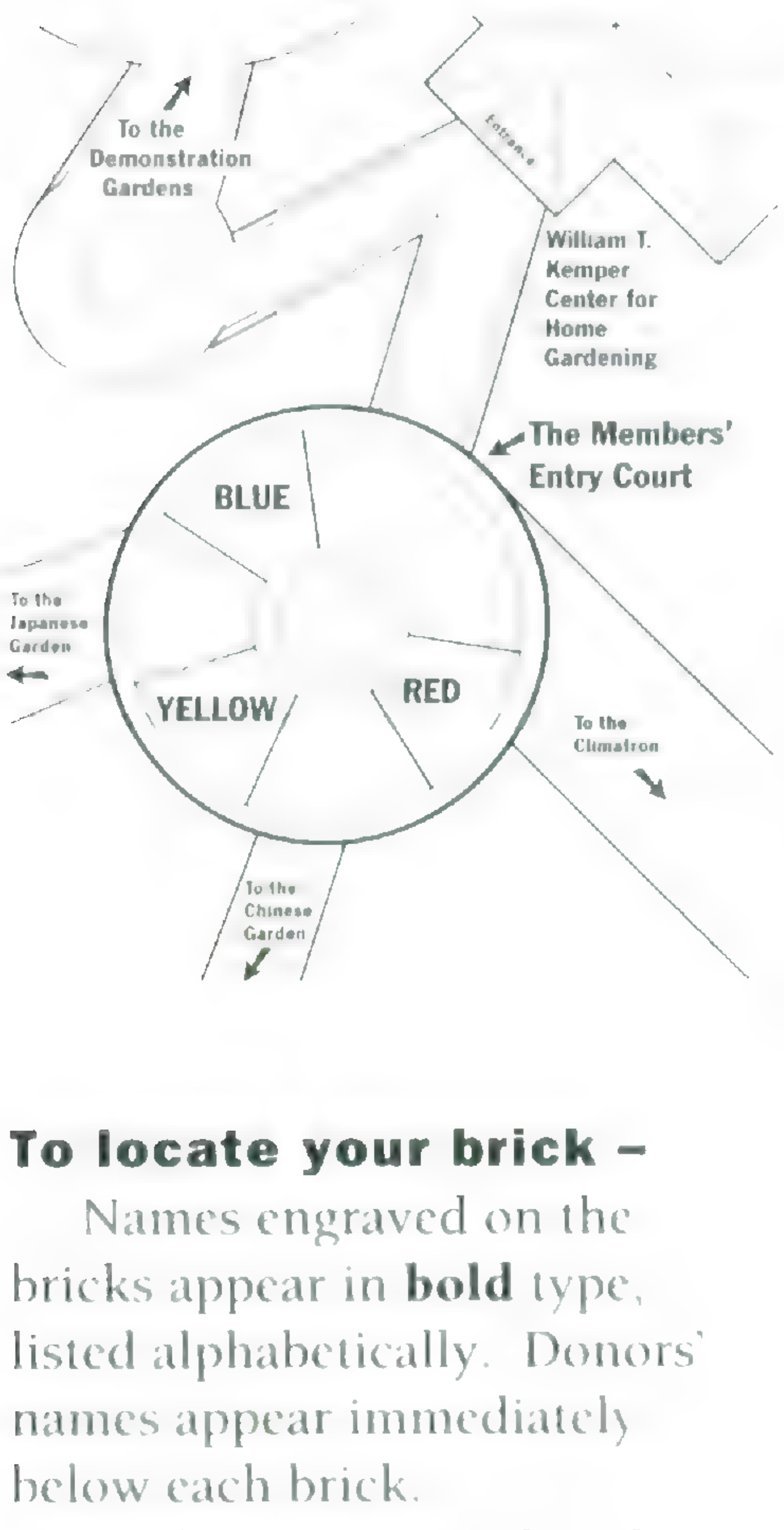
New In the Shop!

- New three-year *Home Gardening Diary*, with monthly tips from the William T. Kemper Center for Home Gardening.
- Handsome denim or twill shirts with the Garden's logo embroidered on the pocket.

Above: The grand opening reception for brick donors, held on June 15, 1996.

Be Part of a Special Event for Donors of Bricks — Coming This Fall!

The Members' Entry Court



To locate your brick –

Names engraved on the bricks appear in **bold** type, listed alphabetically. Donors' names appear immediately below each brick.

Bricks are arranged in the Entry Court in three sections, designated "Red," "Blue," and "Yellow," with signature bricks arranged around the central planting bed. Please refer to the map above to locate your brick.

The bricks listed below were donated between June 1, 1995, and March 31, 1996. Bricks not installed as of March 31 are listed on page 18.

Bronze Signature Bricks

Eliane & Harry Abeln
Eliane & Harry Abeln
Joseph & Herta Mullaney
Joseph & Herta Mullaney
Joan and Les Nackman
Joan and Les Nackman
Dotty Palisch
Dotty Palisch
Elizabeth Ruwitch
Mrs. Lil Abraham
Mr. and Mrs. Lester P. Ackerman, Jr.
Mrs. Celia J. Agatstein
Mrs. Carol S. Bodenheimer
Mrs. Marian Cronheim
Mrs. Max Deutch
Mary Drey
Mrs. Saul Dubinsky
Mrs. Melvin Feist
Natalie Freund and Robert Lewin
Sunny Glassberg
Mrs. Stanley Goodman
Mr. and Mrs. Sam Langsdorf, Jr.
Mr. and Mrs. Jerry Levitt
Mr. and Mrs. Alan Lewin
Mrs. Benjamin Loeb
Mrs. Henry C. Lowenhaupt
Mr. Alfie Menotti
Mildred and Richard Prager
Revella Price
Mr. and Mrs. Frank Prins
Mr. and Mrs. Louis R. Putzel
Mr. and Mrs. Phillip Rashbaum
Lois and Alan Ross
Mr. and Mrs. Arthur Scharff
Mrs. Henry J. Scherck
Mrs. Queenie Schiele
Mrs. Walter Sears
Mrs. Audrey Senturia
Mr. Jim Singer
Mrs. Samuel Soule
Mrs. A. Ernest Stein
Mr. and Mrs. Melvin S. Strassner
Jenny N. Strauss
Mr. and Mrs. William Wallbrunn
Mrs. Helman C. Wasserman
Mrs. Jean S. Weinstock
Mrs. Frank P. Wolff
Ellen and Henry Zucker
Mary and Paul Shuff, Meg, Paul, Dan, John, Mark, Patrick & Cara
Dr. and Mrs. Paul Shuff and Family
Ed and Joan Stevens
Ed and Joan Stevens
Gerhard Token
Mr. and Mrs. Kenneth H. Token
Grete Token
Mr. and Mrs. Kenneth H. Token

Engraved Bricks

RED SECTION

Carolyn M. Adams
Kathleen S. Auinbauh
Grady & Doris & Renee Balthrop
Grady W. Balthrop
Bob & Audrey Barhorst
Alexia and Jeffrey Arensmeier
Brian and Judith Bender
Judith Bender
Pitty & Ray Bentele
Dr. and Mrs. C.A. Case, Jr
Mr. and Mrs. Robert P. Tschudy
Andrew Dane Billings
Sharon Billings
Christian Hart Billings
Sharon Billings
Lorri, Steve & Julie Carroll
Julie Carroll
Don & Phyllis Chambers
Leslie Chambers Strohm
Ketta Chudomelka Craig
Ketta Chudomelka Craig
Dear
Glenda and Jim Seldin Family
Theresa and Jeff Seldin
Sally and Bob Harrison
Suzy Seldin and Norman Davis
Nancy L. Dixon / Judith L. Barr
Judith L. Barr
Elvis R. Dye / Iona M. Dye
Iona M. Dye
Rausby B. Edwards
Laurenteen Reese
Jarvis Damar Edwards
Neonatology Intensive Care Unit
of St. John's Mercy Hospital
Fred C. Engelhardt
Mr. and Mrs. John G. Levis
Janelle Evans / James Criscione
Janelle Evans
Robin & Remi Gavlick
Walter K. Gavlick
Fred & Midge Gruetzemacher
Susan K., Kim & Paul Hohmann

Dorothy & James Haddock
Ann and Michael Ross
Julie and Roger Haddock
Pam and John Haddock
Mary and Bill Haddock
Susan Haddock
Thomas Edwin Halstead
Mrs. T. E. Halstead
Kathrene Harnacker
Barb, Henry, Anne and Stephen Allhoff
Rowena Henschel
Mr. and Mrs. Edward Henschel
Mark F. Herbers
Mark F. Herbers
Meta Herzer
Mrs. Meta Herzer
Rod & Marge Hill
Rodney F. Hill
Florence Hoey
G. Brooke Hoey
Miss Jaya
Anita Chastain
Montessori Children's House
Gretchen P. Jones
Gretchen P. Jones
William Jay Katz
Libby Katz
Marcella Kennedy
Marcella M. Kennedy
Paul Kennedy / Hilda Kennedy
Marcella M. Kennedy
Sarah Lardner
John D. Steele
Charlotte B. Leu
Doris and Jules Orabka
Evelyn A. Luckey
Downtown St. Louis Plaza Center
Brienne & Brad Manley
Violet and Sara Manley
Priscilla & James S. McDonnell
Mr. and Mrs. James S. McDonnell III
Charles R. Meissner
Charles Meissner
Dr. & Mrs. Midden, Chris & Kate
Dr. Paul Midden
Gay & Philip Moppert
Mary Ellen Young
Alicen, Susan & Tim Moser
Ralph Olliges, Jr.
Charles R. & Marie C. Naert
Marie C. Naert
Thekla F. Neuner
Mrs. Edward J. Neuner
Theresa Maulin Norman
Wade C. Norman
Frances Olliges / Helen Engel
Ralph Olliges, Jr.
Lew & Fran Pollvogt
Mary Frances Pollvogt
Ruth M. & Robert E. Powell
Shirley Flavin
Arthur & Elvira Rebienne
Mr. and Mrs. Arthur Rebienne
Sandra L. Riggs & Family
Richard Dehn Riggs
Max Riley / Cruz Riley
Joel Y. Riley
James Harrison Rosenbloom
Carol M. Apuzzi-Rosenbloom
Janice & Michael Schade
Martha Schade
Lena & Walter Schmidtberger
Mark Weber
Alfred Schwartz
Alfred S. Schwartz, M.D.
Cathleen I. Sloan
Cathleen I. Sloan
Christine Strecker
Bob Strecker
Joan Elizabeth Strube
Michael and Christine Strube
Margie Talcoff
Bert Talcoff
Leo A. Thierry & Family
Mrs. Dorothy M. Thierry
Bruce & Audrey Trafton
Audrey M. Trafton
Harold & Doris Ulkus
Mr. and Mrs. Harold Ulkus
Gail & Dorothy Upchurch
Mr. and Mrs. Gail Upchurch
Kevin Spoehrer Werner
Mr. and Mrs. Robert P. Tschudy
Karen Marlow Wilkenloh
William Wilkenloh
Gerald & Doris Williams
Janelle and Charles Williams
Blake & Debbie Wolf Family
Blake G. Wolf
Ralph D. Zigrang
The Family of Ralph D. Zigrang

YELLOW SECTION

Mr. and Mrs. Edwin H. Barsachs, Jr.
E.H. Barsachs
Clara Battles
Patricia Battles Halle
Thomas E. Berry / Carol G. Berry
Thomas E. Berry
Dave & Sarah Bertelsen
David Bertelsen
Keith & Kali Bertelsen
David Bertelsen
Roger & Diane Brueckman
Roger Brueckman
Erwin & Anna Chross
Erwin Frank Chross
John & Ruth Daerda
John Daerda
Ruth S. DeFabio
Evelyn M. Stark
K & J DiMercurio / G & A Knopf
Grady W. Balthrop
Mark & Barb Doering
Mr. and Mrs. Mark Doering
Leonard & Angelina Erutti, Sr. Family
Arnold Erutti
Leonard Erutti, Jr.
Aloys Faenger / Eugenia Faenger
Eugenia Faenger
Jim & Lou Fink
Edward B. Stevens
John Frazer / Billie Bunch
Billie Bunch
Ron & Martha Gersten
Ron and Martha Gersten
Betty, Shana & Joe Grasso
Joe Grasso
Doris Gravagna
Carl Stringfield
Warren H. Green
Joyce R. Green
Glennon Gregory
Helen Gregory
Jim, Jan & Julia Hawn
Jim, Jan & Julia Hawn
Nicole & Ali Heerlein
Christine Heerlein
Pat Lemons Heick / David H. Heick
Pat and David Heick
Ferd E. Herr Family
Misses Ethel and Marian Herr
Fred L. Hoffmann
Eileen Hoffmann
Barbara Wilson Jacobs
Barbara Jacobs
Hannah Kaur Kane-Padda
Gurpreet S. Padda
Dr. & Mrs. William F. Killian
William F. Killian
Catherine B. Leicht
Cathy & Kelly White
Elizabeth Lexleigh
Elizabeth Lexleigh
Frank Manske
Family of Frank Manske
Theodore "Ted" Nicholas Millas
Gail L. Graham
Ruth Elizabeth Marie Mullins
Family of Ruth Elizabeth Marie Mullins
Nameplate & Panel
Nameplate & Panel Technology
Rev. Earl E. Nance, Jr.
Rev. Earl E. Nance, Jr.
Carter Newton / Dr. G. Newton
Carla M. Newton
George & Helen O'Connor
Edward B. Stevens
Walter & Ann O'Leary Family
Ann E. O'Leary
Michael Steven Olson
Mrs. Olive Olson
Carol Oppenheim
Arthur J. Oppenheim
Bob & Carol Powers
Bob & Carol Powers
Neta H. Quade
Hadley A. Quade
June Reilly
Dr. John V. Reilly
James Reinert MJF
Marsha Griffin
Walter F. Robbins
David, Nancy and Erin Robbins
Jordan, Alex, Lori & Scott Sale
Dr. and Mrs. Scott Sale
Steven Wayne Schaetzel
Marlene and Wayne Schaetzel
G. Gifford Scott
Mildred F. Fabick, Jr.
Henry Clay Scott
Pat and Rick Klimushyn
Naomi Ruth Scott
Patricia Klimushyn
Marian & Jim Senger
James H. Senger
South Side Roofing Co., Inc.
South Side Roofing and Sheet Metal Co.
Clair & Connie Stevens
Edward B. Stevens
Rolland & Dorothy Stevens
Edward B. Stevens
G & M Talbott Grandchildren
Mrs. Gene Talbott
Sophie Tobias
Lucille Rock
The Tobins
Ms. Terry Tobin
Annette Townsend
Annette Townsend
Steve Tschudy
Steve Tschudy
August E. Vogt / Patricia D. Vogt
Mrs. Patricia D. Vogt
Henry & Mary Waldschmidt
H. A. Waldschmidt, O.D
Donna & Tom Walker
Mr. and Mrs. Stuart Trottmann
Charles & Eileen Warner
Edward B. Stevens
Wilson Family / Ed, Sue & Lucy
Sue and Ed Wilson
Pam Wissore / Vicky Krulic
Pamela J. Wissore

BLUE SECTION

June Adams
June Adams
Jonathan C. Bell
Diane, Charles and Lauren Bell
Linda Lillian Bollman
Lillian Bollman
Ken & Maria Bowers
Kenneth Bowers
Alex & Michael Brasher
Patricia Brasher
Donald Lester Bruder
Chris B. Carrier
Cliff & Mary Ann Brune
Mr. and Mrs. Frank Reynard
Bob, Cathy, Mike & Jim Carney
Cathy and Bob Carney
Mary Jo Carroll
Mary Jo Carroll
Felicita Cogorno
Eugene Cogorno Family
James W. & Sophie Connor Family
Sophie Connor
Carol, Cathy & Cynthia Crooks
Mr. and Mrs. James Crooks

continued on next page

Brick Donors

continued

Michael John Curran
Virginia Revelle
Antonio J. Del Monaco
Margaret Del Monaco
Jim Dickinson / Larry Zerman
Lawrence R. Zerman
Lucia & Adriana Disano
Mr. and Mrs. James R. Disano
Lorraine Elbein / Melvin Elbein
Tracy Elbein Litz
Dorothy & Ralph Fischer
Joann and Myron Carpenter
Richard & Irene Flowers
Carol Brase
Mildred Flowers
Joan Selby
Patricia Wilds
Irma A. Foerstel
Joseph C. Lindell, Jr
Ruth Mueller Gerdes
Ruth Gerdes
Christino Gomez
Ronald L. Gomez
Lucille Woodcock Grady
Aileen and Lyle Woodcock
Earlene E. Haas
Diane and Steve Smith
Alyssa Erin Reitman Hadzima
Dr. Laurie Reitman
Virginia Heimos
Miss Virginia Heimos
Carl J. Henke
Eugenia C. Henke
Herbs for Health & Fun Club
Herbs for Health and Fun Club
Nancy C. Higgins
Nancy C. Higgins
John & Lora
Mr. and Mrs. John F. Holt
Charles & Erna Horwitz
Bernice Horwitz
KMOX / News – Talk 1120
KMOX Radio
Darlene Albert Knott
Darlene Knott
Penny & Martin Kodner
Mr. and Mrs. Martin Kodner
Dick & Polly Kozacka
Richard J. Kozacka
Angeline Lembeck
Martha L. Swaykus
William J. Lenz / Lois M. Lenz
Alexia and Jeffrey Arensmeier
Al & Alice Maack
Mary Maack Ellis
Herbert Kenton Moss
Mrs. Herbert K. Moss
Arthur & Geneva Mueller
R.F. Mueller
Edward J. Neuner
Mrs. Edward J. Neuner
Ronald Niemann
Kate Lewis Wharton
Sally Lewis Williams
Don & Joan & Ellen O'Neal
Joan and Don O'Neal
Allen & Pauline Pearson
Allen L. Pearson
Cecelia Guenther Peschke
Virginia Revelle
Drake James Neyland Pinkston
Ivy Neyland-Pinkston
Debra L. & Thomas R. Poepper
Debra L. Poepper
Ruth V. Poindexter
Dale and Mary Clemons
Alice Tilden Pryor
Marshall R. Crosby
Shelley L. Pryor
Nicole–Gina / Grandpa Rebeck
Charles J. Rebeck
Marshall Respess
Marshall R. Crosby
Shelley L. Pryor
Renata Rotkowicz
Sharon Balsman
B. A. Ruthmeyer Family
Mr. and Mrs. Bernard A. Ruthmeyer
Jean & Lewis Sachs
Cathy & Bob Carney
Hal & Dawn Salmon
Hal and Dawn Salmon
Barbara Lipson Schukar
Sue and Gregg Berdy
Kathy and Terry Bader
Doug Schukar
Drs. Henry & Reedie Schwartz
Henry G. Schwartz, M.D
Milan Setlich
William E. Willis
Evie & Jim Shucart
Mr. and Mrs. James Shucart
Luke & Tory Sparks
Mr. and Mrs. Robert E. Sparks
Carol & Jim Spehr
Mr. and Mrs. James Spehr
Larry & Marion Thilking
Mrs. L. W. Thilking
Scott Tjaden
Scott Tjaden
George & Rose Truscheit
Mr. and Mrs. Orville G. Warren
Audrey & John Wattler
Audrey Wattler
Capt. William L. & Rose Marie Webster
Capt. and Mrs. William L. Webster
Adrienne Welch
David Hovsepian
Arthur Zbaren / Marjorie Zbaren
Mrs. Carl F. Kottmeier
Abby & Katie Zulich
Carol and Joseph M. Zulich

Bricks Not Yet Installed

As of March 31, 1996:

SIGNATURE BRICKS

Linda Bertram
Southwestern Bell Family
Jean G. Brumback
Jean G. Brumback
Emmett L. Burt
Emmett L. Burt
Steve and Barb Davis
Mr. and Mrs. Steven L. Davis
Margaret and Hugh Hamilton
Mr. and Mrs. Hugh A. Hamilton
James E. Hullverson, Sr.
Shirley S. Hullverson
Mr. and Mrs. Andrew F. Corley
Mr. and Mrs. James Hullverson, Jr.
Corky & Dottie Kinyon
Mr. and Mrs. Carlisle Kinyon
Sister Mary Paul Kondrasky, O.S.F.
Jim Offer
Mildred B. Levin / Willard A. Levin
Mrs. Martin Jaffe
Gerald McAchran
Friends from Monsanto
The Oyers
Mr. Ronald J. Oyer
Edward O. Roehr
Trust of Edward O. Roehr
Eileen M. Roehr
Trust of Eileen M. Roehr

ENGRAVED BRICKS

Tarik Al-Hawli
Dr. Ihsan Al-Shehbaz
Madeline Bendorf
Walter Bendorf
Brueckman Grandchildren
Diane and Roger Brueckman
Katherine S. Bush
Mr. and Mrs. William H.T. Bush
Lindsay W. Bush
Mr. and Mrs. William H.T. Bush
Louisa R. Bush
Mr. and Mrs. William H.T. Bush
Patricia R. Bush
William H.T. Bush
Jim, Pam, Katy, Andy, Pete & Zach Cocos
Mr. and Mrs. James P. Cocos
Gladys Konradi Coombes
Linda Raming
Mary Pat Costello
Mrs. Thomas K. Costello, Jr.
Rose-Marie Costello
Mrs. Thomas K. Costello, Jr.
Thomas K. Costello, Jr.
Mrs. Thomas K. Costello, Jr
Drusilla DeLisle
Alfred T. DeLisle
Karan L. Hotfelder
Kathy A. McAtee
Michael & Shirley Flavin
Mary McLaughlin
Jacob & Marie Geiser
Robert Schaefer
Walter Geiser
Robert W. Schaefer
John & Mary Jane Gremmelsbacher
Mary, William, John & Veronica Bicker;
Kathleen, Michael, Joseph & Ann Basso;
Jane Marie, Rodney, Adam & Amy Miller
Walter Guttmann Family
Dan Melliere
Amy & Caitlin Haake
Amy G. Haake
Lillie Hasenstab
Michael L. Hasenstab
Alvis Wade Headen
Wanda R. Headen
John A. Hecht
Eleanor Hecht
Adelaide C. Kipp / John B. Kipp
John B. Kipp
Marian Koetting
Marian Koetting
Roman Z. Kuchner
Keith E. Steinberg
Kuciejczyk-Kernan Family
Kuciejczyk-Kernan Family
Kenneth Landzettel
Walter Pfeiffer
Norman & Lucille Landzettel
Walter Pfeiffer
Patricia Lloyd
Patricia Lloyd
Athena Lemakis
Jeanne Tompras
Harry and Emanuel Lemakis
Kenneth & Helen Lindenmann
Helen Lindenmann
Martha Shoemaker Lopiparo
Jennifer Lopiparo
Charles Manley
M'Liss A. Hudson
Melba K. Mehrhoff
Jerry L. Klein
Lee & Sharon Melly
Lee and Sharon Melly
Logan Samuel Miles
Victoria C. Miles
Gale Murphy
Greg Novak
Edward E. Oldani
Loretta N. Oldani
Theo. J. Rasche
Ellen Rasche Pecoul
David W. Rasche
Margaret R. Rota
Joanne R. Robbins
Walter Robbins
Rose Rudde / Fred Rudde
Mr. and Mrs. Robert H. Sicking
Rita T. Sheftall
Trust of Eileen M. Roehr
Lyn Sokolik
Mar Doering, DVM
The Leo & Ida Speh Family
Jane Costello
The Spradleys & TFL, Inc.
Bill Spradley
Trees, Forests & Landscapes, Inc
Evelyn M. Stark
Evelyn M. Stark
Bettie Becker Steffan
Ellen S. Becker
Bettie and Dick Perry
Marci and Jim Rehg
Jim & Louise Thompson
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Right: Fifth graders from Notre Dame and St. Engelbert schools visited the Japanese garden as part of the "Tickets to Taikobashi" tour.

Catholic Schools Pair Up for Cultural Diversity

Living in a Changing World

FOR THE PAST SIX YEARS, 500 fourth and fifth graders from St. Louis Archdiocesan schools have visited the Garden twice a year to learn about plants and the natural world. But the visits are far more than field trips — they bring together children from predominantly white or African-American neighborhoods and give them a chance to get to know one another.

"Living in a Changing World" works with 12 Catholic parish schools, pairing up classes from fourth through the seventh grades. Groups from partner schools make two visits each year to various cultural institutions, where they participate in educational enrichment programs. Institutions currently participating in the program are the Garden, the Saint Louis Zoo, the Missouri Historical Society, and the St. Louis Science Center.

Schools are paired beginning with the fourth grade, and many children see the same partners year after year. Some paired classes also get together for morning Mass, games, or social gatherings. The program stresses small groups that encourage the children to work together, and the commitment and enthusiasm of the teachers in the Archdiocesean schools is one of the things that makes the program successful.

"In a very quiet way, this program helps to break down barriers," said Maried Swapp of the Garden's Education Division, who coordinates the program. "Some of the children wouldn't have the opportunity to visit cultural institutions without these field trips. It also is a very effective way to help the students see beyond racial and cultural stereotypes."

"Living in a Changing World" was launched in 1990. It grew out of a very successful cultural diversity program developed for St. Louis public schools by Adelaide and Daniel Schlafly. Mr. and Mrs. Schlafly, who also fund the Archdiocese program, are St. Louisans with a lifelong commitment to education. Mr. Schlafly served on the St. Louis Board of Education for 28 years and is an emeritus trustee of the Garden. Mr. Schlafly said, "The success of this program owes a great deal to the enthusiasm and support of Peter Raven and the Garden."

In March, fifth graders from Notre Dame and St. Engelbert schools took a tour of the Japanese garden. The tour, called "Tickets to Taikobashi," is supported by the Arts and Education Council of Greater St. Louis, which awarded the Garden a two-year grant to develop self-guided tours on Japanese garden design and culture. Teachers receive kits of materials for classroom activities to reinforce the field trip, and an instruction guide. Over 400 students have benefitted from the tours, and the kits will be available in the future through the Stupp Teacher Resource Center.

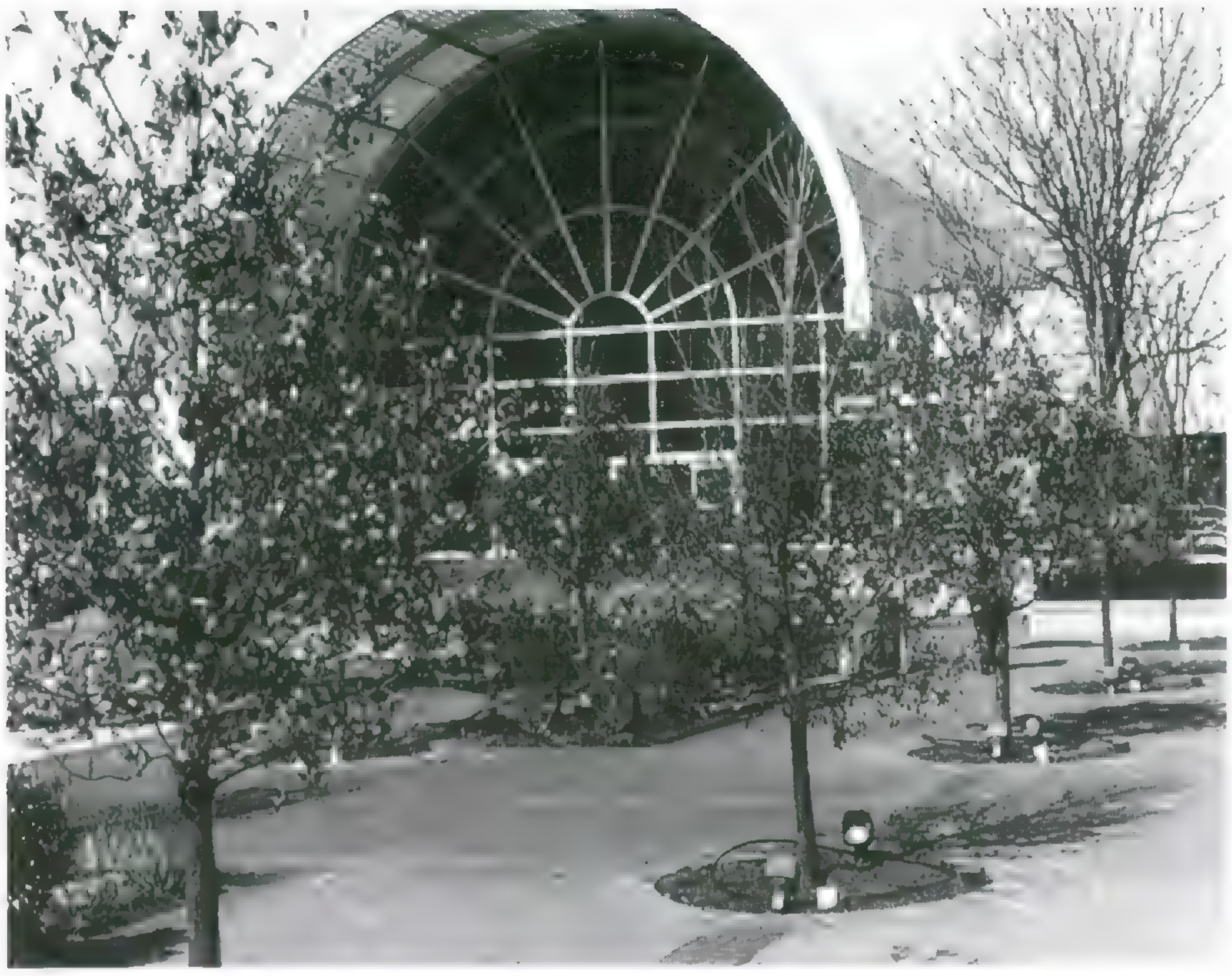
In Memoriam

Sister Mary Ann Governal

Staff and friends of the Garden mourned the death of Sister Mary Ann Governal, who coordinated the "Living in a Changing World" program with the Garden. Sr. Mary Ann, 49, and Ellen Boedeker Ryan, 47, were killed in an automobile accident March 21 while returning from an educators' conference in Potosi, Missouri. Both women were administrators for the St. Louis Archdiocesan schools. Sister Mary Ann was the Archdiocese's associate superintendent for elementary education.

"We were all very fond of Sister Mary Ann and we worked closely together, pursuing our common goals," said Barbara Addelson, science outreach coordinator for the Garden. "She was a very kind and lovely person and a terrific administrator."

Maried Swapp, who coordinates the Garden's work with Catholic schools, added, "Sister Mary Ann had a strong commitment to science education and its improvement within the Archdiocese, and she possessed the energy and creativity to make things happen. I truly enjoyed knowing and working with her."



Have You Noticed... *New Trees on Spoehrer Plaza*

Like many public areas, Spoehrer Plaza is a high stress environment for trees. Limited space for roots, chlorine-laden spray from the fountain, and extreme temperatures caused by the expanse of surrounding pavement combine to shorten the life of any species planted there. The original trees, planted on the plaza in 1982, were Kentucky coffee bean trees, *Gymnocladus dioicus*, which can have a natural lifespan of 100 years.

In any formal landscape design, the loss of even one plant means that another of the same size and species must be found, or the entire group must be replaced. Within the last few years, nine of the Kentucky coffee bean trees succumbed to the stress of the site, and replacements were not available.

There are many species of trees suitable for ornamental plantings. The challenge for the Garden was finding 28 matched specimen trees in the same size. The horticulture staff worked for three years, searching nurseries all across the country, to locate the trees needed for Spoehrer Plaza, only to find them "right in our own backyard" at Baxter Tree Farms near St. Louis.

The 28 new trees are sawtooth oaks, *Quercus acutissima*, a hardy species that is native to regions of China, Korea, and Japan with climates similar to ours. It is named for the tiny teeth along the edges of the leaves. There are several mature sawtooth oaks at the Garden. Two can be found near the Margaret Grigg Nanjing Friendship Garden and one in the English Woodland Garden.

Sawtooth oak has several desirable characteristics: in youth, the trees are pyramidal in shape with striking black fissured bark. The leaves remain green well into autumn and are retained throughout the winter, dropping in late winter in time for cleanup before the fountain is filled. As the trees mature, they take on a more rounded crown with impressive large lateral branches above head height, making them a fine shade tree.

The Kentucky coffee bean trees were removed from Spoehrer Plaza and the new sawtooth oaks were planted in March.

— Boyce Tankersley, Horticulture Manager

Flower Show Exhibit Receives Awards

Jane and Whitney Harris, longtime friends and supporters of the Missouri Botanical Garden, were honored with several prizes for their beautiful display at the Junior League St. Louis Flower Show this spring. At left, the Harrises are shown with their exhibit. The Garden co-sponsored the display.

New MBG Video Series

"What's It Like Where You Live?"

On March 4, 1996, the Garden hosted 400 educators participating in the Midwest Education and Technology Conference at a reception sponsored by Southwestern Bell. Guests got a first look at the Garden's newest educational video series on biomes of the world, "What's It Like Where You Live?," a joint production of the Garden and the Evergreen Project. The first video in the series, "The Desert Biome," made its debut with an extensive companion curriculum. Guests also had an opportunity to explore MBGnet, part of the Garden's World Wide Web site which features educational activities related to the video series.

Science Teachers Preview New Video

Teachers from all over the United States got the opportunity to preview the Garden's new educational video series.

On March 28, 1996, the Garden hosted a reception for educators visiting St. Louis to attend the National Science Teachers Association Conference. The reception was made possible through the generosity of Emerson Electric Co.

The evening featured the premiere of the video "Temperate Deciduous Forests" in the Garden's new series on biomes, "What's It Like Where You Live?" Guests also visited the interactive exhibits in the Brookings Interpretive Center, experimented with online access to the World Wide Web and MBGnet, and were introduced to many activities of the Garden's Education Division.

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1996

WHITAKER jazz *festival*

The Bosman Twins

Wednesday evenings enjoy outdoor concerts at the Garden by some of the best jazz ensembles in St. Louis, with a special appearance by Tim Whitmer and KC Express from Kansas City. Music from 7:15 to 9:30 p.m. in Cohen Amphitheater. Come early and bring a picnic supper, or purchase box suppers for $6.50 each. To order box suppers, call 577-9528. No alcoholic beverages or glass containers are allowed on Garden grounds. Bring blankets or lawn chairs for seating.

The Whitaker Jazz Festival is made possible by the generous support of the Whitaker Foundation, which supports the arts in St. Louis to promote our common heritage while celebrating our diversity and encouraging the vitality of our community.

JUNE 5 — The Bosman Twins

JUNE 12 — Pieces of 8

JUNE 19 — Paul DeMarinis & Brilliant Corners

JUNE 26 — Sherry Drake with Eddie Plitt and Don Krasulak

JULY 3 — Tim Whitmer and K C Express

Performances at the Whitaker Jazz Festival will feature new outdoor sound and lighting systems, made possible through the support of the Whitaker Foundation.

A limited number of tickets are available for each concert: Garden members may request tickets at the Ridgway Center ticket counter two weeks in advance. We are grateful to the Whitaker Foundation for making it possible to offer the tickets free of charge.

SUMMER JAZZ OUTDOORS

Missouri Botanical Garden BULLETIN (ISSN 0026-6507)
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Missouri
Botanical
Garden

JULY / AUGUST
1996

VOLUME LXXXIV
NUMBER FOUR

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS AND THEIR ENVIRONMENT, IN ORDER TO PRESERVE AND ENRICH LIFE."

ONE OF THE MOST important ways the Garden enriches our lives is also one of the simplest. Come take a stroll about the grounds on a beautiful summer evening and you will discover the tranquility that is one of the Garden's greatest gifts. This summer there are many wonderful new things to see, from the Blanke Boxwood Garden to the Piper Observatory to the new demonstration gardens at the Kemper Center. We hope you will visit the Garden often this summer to refresh your spirits.

Structural steel is beginning to rise on the site of the new Research Center at Shaw and Vandeventer. This project is of enormous significance, not just for the Garden but for St. Louis and the international community as well. I invite you to read Bob Shapiro's splendid address on page 6 for an overview of the importance of the Research Center and the Partnership Campaign.

We were proud to be hosts in May to the national meeting of the American Association of Botanical Gardens and Arboreta, which had not visited St. Louis for nearly two decades. The American Horticultural Society also met in St. Louis in May, and the staff did a magnificent job of presenting the Garden to all our visitors.

On page 19 we pay tribute to the remarkable men and women who celebrated anniversaries this spring as Garden volunteers. Without their help and dedication, the Garden could not provide the services we all take for granted. Thank you, one and all!

— Peter H. Raven, Director

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400
24-hour recorded information about Garden events, hours, admission, and directions.
Or call 1-800-642-8842 toll free.

24-Hour Information on Gardening Topics:
HortLine – (314) 776-5522
You will need a touch tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401
Information on jobs and volunteer opportunities at the Garden is available with a touch tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: (314) 577-5143
Monday through Friday, 9:00 a.m. to noon.

Master Composter Hotline: (314) 577-9555
9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m., every day except Christmas; 9 a.m. to 8 p.m., Memorial Day through Labor Day. Grounds open 7 a.m., Wednesdays and Saturdays.

Kemper Center for Home Gardening:
10 a.m. to 4 p.m. daily; Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop:
9 a.m. to 5 p.m. daily; 9 a.m. to 6:30 p.m. daily, Memorial Day through Labor Day. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:
Buffet service during hours the grounds are open.

Tower Grove House:
10 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 30 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. The Visitor Center is open 8 a.m. to 4:30 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. Admission is free for Garden members. For information call (314) 451-3512.

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JUN 28 1996
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Moving?
Please remember to send us your new address.
To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this *Bulletin* and mail to:

Name:
Old Address:
Street
City
State Zip
New Address:
Date effective:
Street
City
State Zip

On the Cover
Water lilies in the reflecting pools of the Milles Sculpture Garden.
– Photo by Jack Jennings

Editor
Susan Woolevhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118.

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JUL 11 1996
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PHOTOGRAPHS BY ERIC FRASIER

Dance teams from the St. Louis Chinese Language School performed traditional folk dances during the festival. The Lion Dance, above, opened the festivities and entertained visitors at the dedication ceremonies.

Right: Mr. and Mrs. Fred A. Oberheide [Margaret Grigg] in the Nanjing Friendship Garden just before the dedication.

MARGARET GRIGG NANJING FRIENDSHIP GARDEN IS DEDICATED

CHINESE FESTIVAL

THE DEDICATION OF THE MARGARET GRIGG NANJING FRIENDSHIP GARDEN was a highlight of the Chinese Festival on Saturday and Sunday, May 18 and 19, 1996. Mr. Wang Wulong, chief advisor, Nanjing Municipal Government, and Mr. Huang Dongbi, consul general of the People's Republic of China, were honored guests. The dedication ceremonies on Saturday morning featured a traditional Lion Dance by the St. Louis Chinese Language School, followed by a fireworks display.

During the two-day celebration, visitors toured the new Chinese garden and enjoyed cultural activities co-sponsored by the St. Louis Chinese community, including traditional Chinese arts and crafts, foods, folk dancing, cooking demonstrations, displays of painting and calligraphy, and activities by Worldways Children's Museum.

continued on next page

THE FRIENDSHIP PLAY AREA IN NANJING was dedicated in October 1994. In 1979 Nanjing and St. Louis established the first China-United States sister city relationship. The Missouri Botanical Garden, the Nanjing-St. Louis Sister City Committee, and the people of St. Louis presented the play area to the people of Nanjing in honor of the fifteenth anniversary of their sister city relationship. The playground was designed by landscape architects Robert E. Goetz and Associates, Ltd., of St. Louis. Several features in the new Margaret Grigg Nanjing Friendship Garden were donated by the city of Nanjing.

Rohan Woods Students Donate "Lucky Money" to Support the Chinese Garden

Students of Mrs. Pam Finch from the Junior Kindergarten, Senior Kindergarten, and First Grade at Rohan Woods School performed a song in Chinese at the festival on Sunday, May 19. The children study Chinese customs in school and have made a class contribution of their "Lucky Money" to help support a Chinese garden at Missouri Botanical Garden for the past six years. This year the children saw their dreams come true as they performed in the new Margaret Grigg Nanjing Friendship Garden. From left, standing: Peter Wiegand, Katie Arrow, Madison Boyer, and Melissa Martin.

Guests from China Attend Dedication

Left: A dinner was held at the Garden on May 17 in honor of the Chinese visitors. Guests included the delegation from Nanjing. From left: Zhu Yuzhu, Zhang Daqiang, Wang Wulong, Xi Yongming, Jing Yuanhu, Fu Cheng.

Below left: Guests also included a delegation from the Consulate General in Chicago of the People's Republic of China. From left: Liu Lanxia, Li Xuezu, Zhang Zhenglian, Huang Dongbi, He Yiping, Han Jia, Zheng Ruilin and Mrs. Zheng.

Scientists Meet To Discuss Flora of China Project

Above: Visitors from China met with Garden researchers on May 16 to discuss the Flora of China project. From left: Dr. Zhu Guanghua, editorial assistant on the Flora of China; Prof. Xu Zhihong, vice president of the Chinese Academy of Sciences; Dr. Peter H. Raven; An Jianji, director of the division of American and Oceanian Program, Bureau of International Cooperation, Chinese Academy of Sciences; Dr. Ihsan Al-Shehbaz, coordinator of the Flora of China project.

Dedication at Shaw Arboretum

"People on the Land"

The Garden and the Missouri Department of Conservation joined together on June 6, 1996, to celebrate the completion of "People on the Land," the splendid new permanent exhibit installed at the Bascom Manor House this spring. Since the display opened to the public in April, nearly 3,000 people have visited the Manor House to see it.

The exhibit is a joint educational project of the Garden and the Missouri Department of Conservation. The two organizations have combined their resources and talents on other important projects as well, including the forthcoming revision of Steyermark's Flora of Missouri and the planning of native wildflower displays at the Kemper Center.

"People on the Land" presents the history of land use along the Meramec River, from prehistoric settlements to the present day. The story is told through the eyes of people of different eras who have lived on the land and depended on it for their livelihood, representing the complex choices and issues involved in managing the environment.

The 1879 Manor House was dedicated in 1995 in memory of Joseph H. Bascom, a Garden trustee. The authentic restoration of the historic mansion as a visitor facility was made possible by a gift from Mrs. Joseph H. Bascom, their son and daughter. Other significant gifts were made by the Gateway Foundation and Lucius B. Morse III, a Garden trustee. The Manor House is the first phase of the Arboretum's new visitor center complex outlined in the 1990 Master Plan.

CLIFF WILLIS

People on the Land
Learning from the Land

Above: Shown at the dedication of "People on the Land" are (from left): Lu Morse; Anita Gorman, chairman of the Missouri Conservation Commission; Elizabeth Bascom; and Peter Raven. Left: Guests enjoyed the new exhibits in the restored Manor House.

Ruth Palmer Blanke Boxwood Garden Is Dedicated

On Tuesday, June 11, family and friends of Ruth Palmer Blanke gathered to celebrate the completion of the beautiful new boxwood garden located just north of the Japanese garden. The spendid 1.6-acre walled display encloses an oval parterre of manicured boxwood borders filled with flowering annuals. The beds form the initials of Henry Shaw when viewed from the copper-roofed gazebo. Elegant brickwork, fountains, and playful jets of "leaping waters" complete this beautiful garden.

The Missouri Botanical Garden has been a noted center for the study of *Buxus* for many years. In 1934, Dr. Edgar Anderson, the Garden's late director and a distinguished botanist, visited the Balkans to collect boxwood cuttings and seedlings that he hoped would prove hardy in the midwestern United States, where boxwood is notoriously difficult to grow. In 1969 a study group of volunteers, inspired by Dr. Anderson, formed the Boxwood Society of the Midwest, which has remained active at the Garden for over 25 years. A number of plants grown from Anderson's specimens are on display in the new Blanke Boxwood Garden and the adjacent Edgar Anderson Boxwood Memorial.

Ruth Palmer Blanke and her late husband, Bert, have enriched the Garden and the cultural life of St. Louis through their generous support for many years. The new Blanke Boxwood Garden will delight visitors for generations to come.

CLIFF WILLIS

Ruth Blanke with Peter Raven at the reception in the new Boxwood Garden. Mrs. Blanke was presented with a handmade ceramic bowl designed exclusively for the Garden by Hellmuth, Dunn & Co. The bowl features a passion flower motif representing* Passiflora citrina*, a species discovered and named by Dr. John MacDougal, manager of the Garden conservatories, while working on the* Flora Mesoamericana *project.

BY **ROBERT B. SHAPIRO**

Breaking Ground for the New Research Center

Robert B. Shapiro, chairman and chief executive officer of Monsanto Company, delivered the following address at the groundbreaking for the Garden's new research center on April 20, 1996. He was elected to the Garden's Board of Trustees in February. For a profile of Mr. Shapiro, please see page 26.

IT IS, OF COURSE, A GREAT PLEASURE to be able to participate in these wonderful ceremonies today, and to be part of the excitement and the spirit that surrounds this new beginning. I would simply like to say something that everyone here knows already and feels in their hearts, which is that today is not only a tribute to this magnificent institution, but it is also, in many ways, a tribute to Peter Raven, whose leadership here has made the Missouri Botanical Garden not only one of St. Louis' world-class institutions, but also a resource of global importance to science.

It is obvious, as your presence and the presence of many of our civic leaders demonstrates, that today is a day of major importance to St. Louis, to all of us who live and work here and care about this community, as we continue this day to build on the great legacy left us by Henry Shaw. The occasion reminds us of how important the Missouri Botanical Garden is to all of us, a place where about a million people a year can come and renew their connection to that fundamental source of life, the green life of this planet that is so important to all of us. Indeed, that's probably why all of us instinctively, even little children, are moved and delighted by the beauty of plants, trees, and flowers, in recognition of the intimate connection between them and all life on this planet. Certainly, Missouri Botanical Garden is one of the most beautiful pieces of real estate in the world and, to us, one of the most valuable and, indeed, priceless.

For this neighborhood, today celebrates a building that will be an anchor of stability and a bright signal of recommitment and renewal, and indeed of vitality and life. It has been designed to fit, as you know, easily and comfortably into this community, and it is going to be built in accordance with the principles of green architecture. To express the values of a sustainable future, it will be energy efficient, it will be a healthy place for people to work and visit and, incidentally, it makes good use of environmentally-friendly building materials, some of which are made by our company.

It may be a bit less obvious that today can also be an important occasion for the world at large. We all know, and if we don't, our children certainly do, that we have entered an era of unprecedented environmental danger. Our ancestors went about the worthy and, indeed, the noble task of making better lives for themselves and for their posterity, and they did it in the best ways they knew. Their achievements certainly deserve the admiration and gratitude of all of us who benefit from them. But we can now clearly see that those ways simply cannot last. They can't be sustained; they are enormously wasteful of energy and of resources; and they have serious effects on the world around us.

As world population grows at unprecedented rates, and as people all over the world aspire to live better lives, the waste and the destructive impact of our nonsustainable methods of production and of life, are multiplied to an unprecedented scale, and the time available for us to find answers is rapidly shrinking.

There are today 5.7 billion of us living on this planet, and about one in four (about 1.5 billion) are desperately poor; in 30 to 40 years, there will be about 10 to 12 billion people trying to make decent lives here. And that is the fundamental demographic fact that defines everything else of importance about the way that we and our children are going to live in this world. Most of those people are going to be born in the poorest parts of this world, and the question will be how we are going to feed and shelter all of these newcomers to our planet, much less provide them with a chance to lead decent lives, and how we can possibly do that without the massive destruction of the world around us, without destroying species and habitats, and without exhausting our finite resources of energy, materials, soil, water, and air. If there is an answer to that question, and I believe there is, that answer is surely contained in the phrase "sustainable development", with the emphasis on both words — development, because all of the people of this world are entitled to the opportunity to live decent lives, and sustainable, because anything else is literally a dead end.

> *Sustainable development will take new science, but it will also take the preservation and the careful study of countless species of plants that share this Earth with us.*

We don't today know — indeed, we can't today imagine — what sustainable development on a global scale would look like. We do know that it would have to be based on technologies that we are, at best, only beginning to explore .... In the years ahead, we are going to have to find and breed and genetically modify plants that can feed twice as many people without using more acres and without degrading the environment. Even beyond that, we can see the possibility of using plants as the chemical and pharmaceutical factories of the future, turning solar energy into useful products, safely and sustainably. To do that will take new science, but it will also take the preservation and

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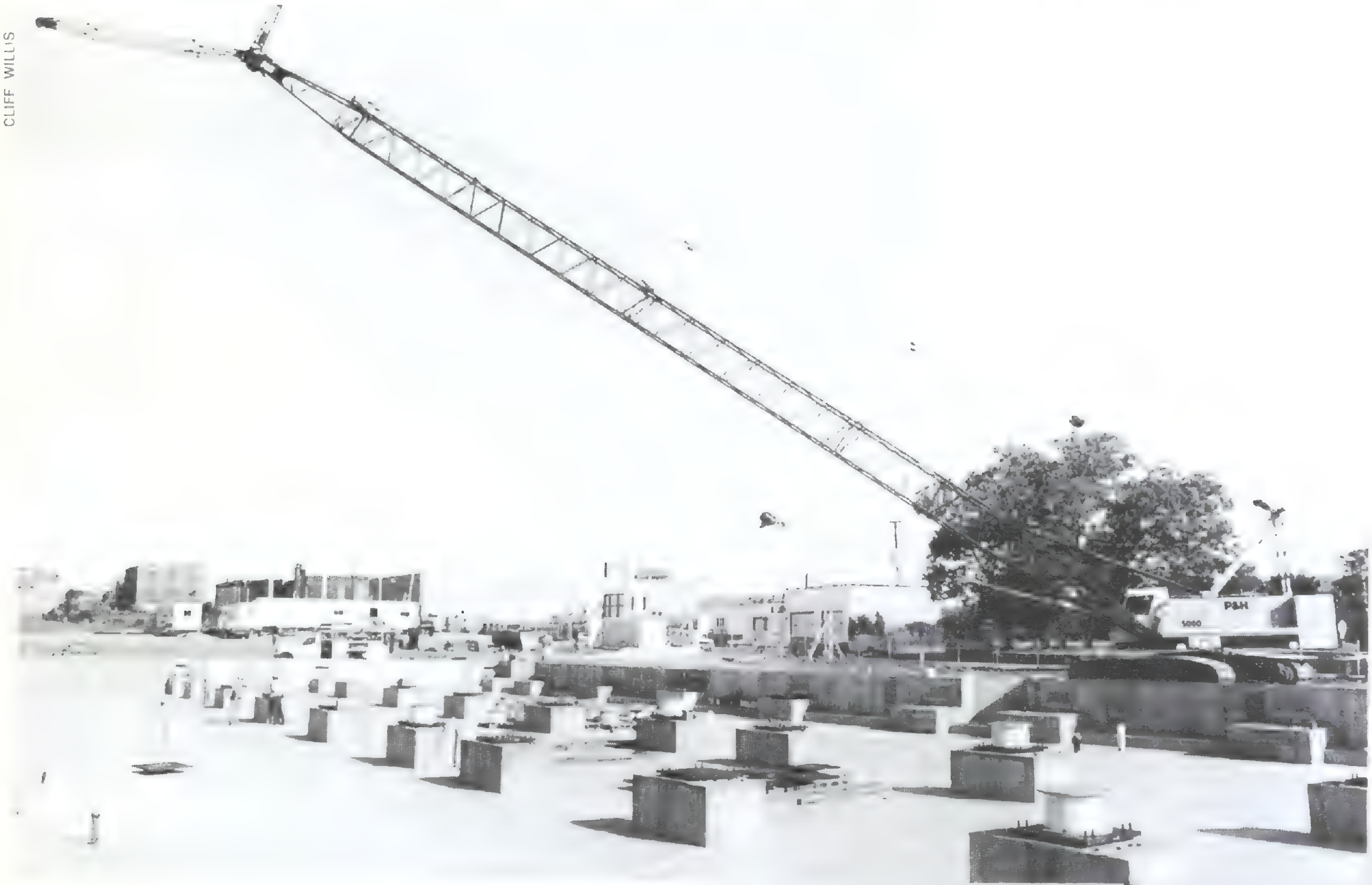
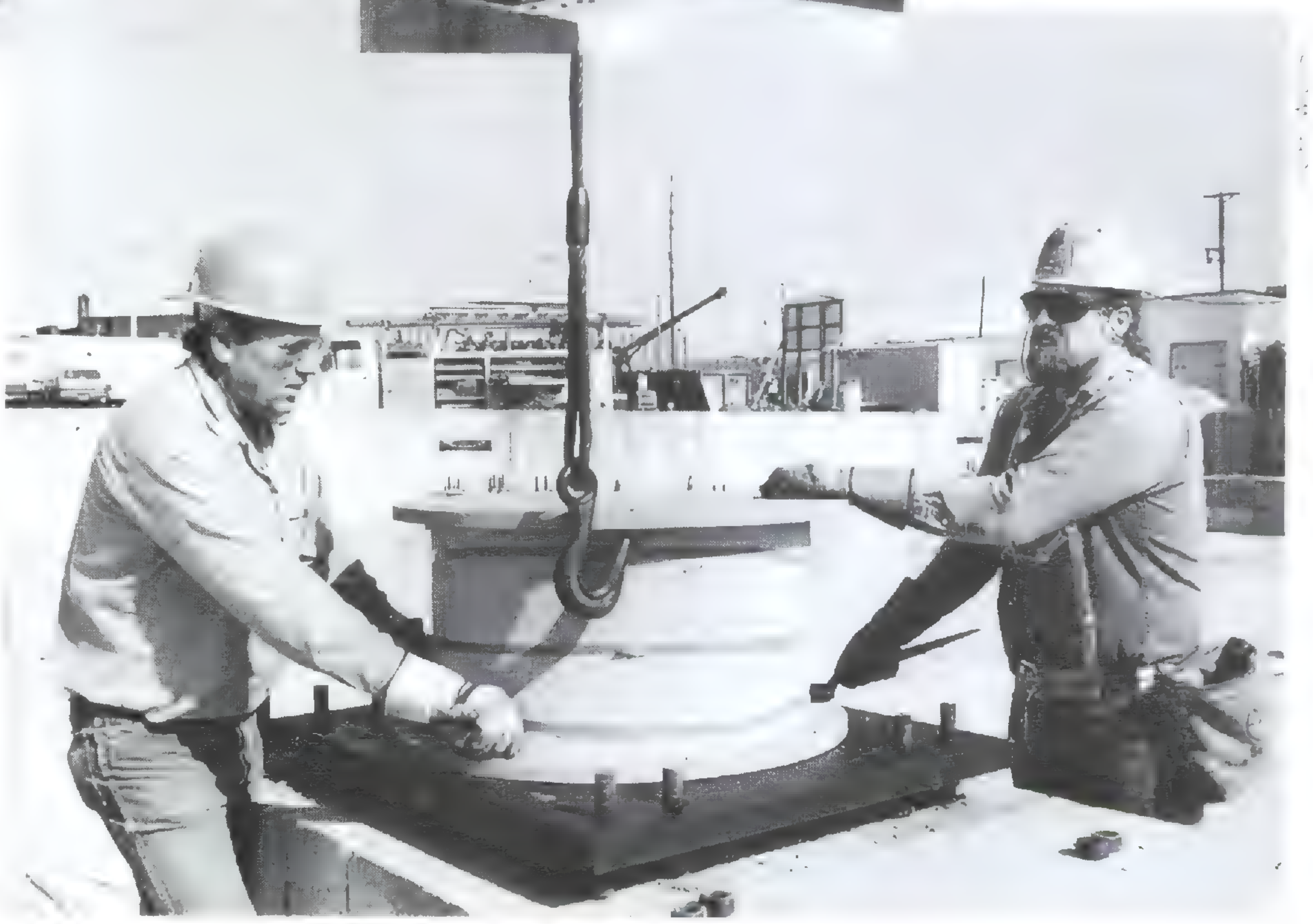


Construction Update

The Garden's new research center, currently under construction at the corner of Shaw and Vandeventer, is one of the first structures in this region to use base isolators to protect both the building and its contents from earthquake damage. Each base isolator unit (below) resembles a stack of pancakes made of alternating layers of bonded steel and rubber.

Above: A crane was used to install base isolators in the foundation of the new research center in June.



the careful study of countless species of plants that share this Earth with us. That, of course, is the principal function of the building we are dedicating today.

The function of this building is to support Missouri Botanical Garden in its task of preservation and research. As you probably know, this is one of only three major institutions in the entire world that identify and classify plants, discover the information that is encoded in their genetic structures and, thereby, open up the priceless opportunity for new advances in agriculture and in medicine. As Peter consistently reminds us, many and perhaps most of all of the plant species in the world will be in danger of extinction in the years to come.

No one knows how many species will become extinct today — species it has taken Nature millions of years to create. And no one will ever know what we might have learned from the species we are losing every day. This is a tragedy of unprecedented, and indeed unimaginable, proportion. But, under Peter's leadership, the Missouri Botanical Garden has become an important force in protecting the irreplaceable plant resources of our world. All of the people of Monsanto are deeply honored that the library that will be on the fourth floor of this new building will be named for our company. The Monsanto Library is going to become one of the world's major information resources on plants. Great work will be done here, important work for this neighborhood, for this city, and for the world — work that may help create a sustainable future for our children."

SMALL GIFTS MAKE A BIG DIFFERENCE

Be Part of the Partnership Campaign!

Whether your donation is modest or magnificent, the Partnership Campaign welcomes your support. Many small gifts add up to big donations, so be a part of the future today! For more information about how your gift can help support the new Research Center, please call the Development Office: (314) 577-9495.

NEW AT THE WILLIAM T. KEMPER CENTER FOR HOME GARDENING

Marilyn and Sam Fox Fruit Garden

THE FOX FAMILY'S GENEROUS GIFT to the Partnership Campaign named the Marilyn and Sam Fox Fruit Garden at the William T. Kemper Center for Home Gardening.

The Fruit Garden is a highlight along the main pathway leading to the Ruth Palmer Blanke Boxwood Garden. When its new plantings mature, the Fruit Garden will display a wide variety of fruit trees and soft fruits suitable for home gardens in the St. Louis area.

Curvilinear planting beds demonstrate techniques for growing strawberries, blackberries, raspberries and other small fruits. An arc planting of fruit trees contains a selection of many different apple cultivars chosen for their low stature, suitable for the home landscape.

Marilyn Fox's love of fruit trees and admiration for the Kemper Center demonstration gardens led her to naming this particular garden. She says, "The whole concept of the these gardens is so important and worthwhile, and will make a tremendous difference in the community. Our family is happy to be a part of it."

Mrs. Fox has been a member of the Garden's Board of Trustees since 1992 and truly believes in the Garden and what it has to offer. "I enjoy going to the Garden because it brings me such peace and gives such beauty. Fortunately, thousands of others can enjoy it too," she says.

In addition to her service on the Garden's Board, Mrs. Fox is extremely active in the St. Louis community. She was named Variety Club's 1996 Woman of the Year and serves on the Board of the Girl Scouts of America, Webster University, Jewish Community Centers Association, and the Jewish Federation. She is a member of Best Friends; Girls, Inc.; and was named a 1993 Woman of Achievement by KMOX Radio and the Suburban Journals.

Mr. Fox is currently the Chairman and Chief Executive Officer of Harbour Group Ltd. and is also very active in the community serving on the boards of Washington University, the St. Louis Art Museum, Barnes-Jewish Hospital of St. Louis, and the Boy Scouts.

CLIFF WILLIS

Jordan Foundation Ornamental Shade Garden and Overlook

THE MARY RANKEN JORDAN AND ETTIE A. JORDAN Charitable Foundation has made a gift to the Partnership Campaign to name the Jordan Foundation Ornamental Shade Garden and Overlook.

This demonstration garden contains a collection of shade plants for the home landscape. It is the place to find drifts of hosta, ferns, astilbes, and anemones planted under flowering trees.

The garden is laid out on both sides of the main tram path as it passes through the Kemper Center. To the west, a handsome trellis covered with climbing roses runs along the wall; a dramatic window in the trellis opens to give visitors a panoramic view over the demonstration gardens below. On the east side of the path, a deep border of small trees, shrubs, and perennials are backed by a curving hedge. The plantings are chosen for their ornamental beauty, shade tolerance, and suitability for home landscapes.

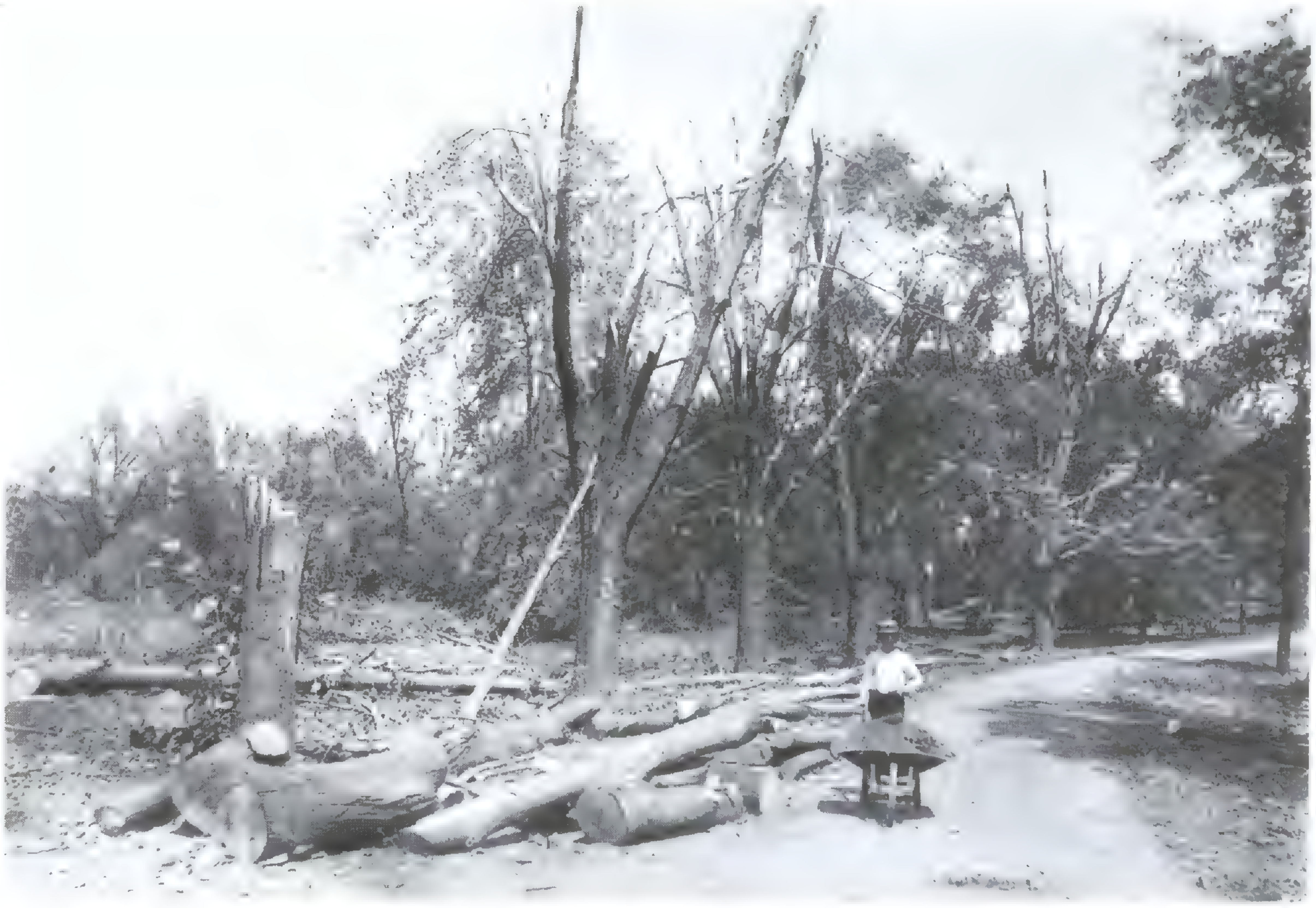
The Jordan Charitable Foundation has been a strong supporter of the Garden for many years. Fred Arnold, advisory committee chairperson for the Foundation, says they are grateful to have been a part of the Garden's success. "The Jordan Foundation has supported the Garden for many years and is one organization that the committee is always unanimous in supporting. We are impressed by the Garden's leadership and have enjoyed seeing the Master Plan reach its goals," he said.

Based in St. Louis, the Foundation was established in 1957 by Mrs. Mary Ranken Jordan and Miss Ettie A. Jordan. It supports a large number of organizations in Missouri, including arts and cultural programs, education, and children's health and welfare.

CLIFF WILLIS

100 YEARS AGO AT THE GARDEN

The Great Cyclone of 1896


MISSOURI BOTANICAL GARDEN ARCHIVES

Above and below: The Garden after the storm.

ON MAY 21, 1896, a terrible hailstorm smashed 6,000 panes of glass in greenhouses at the Garden and destroyed hundreds of plants. The staff hastened to clean up the damage, but it was only a prelude of things to come.

The following Wednesday, May 27, was unusually hot and sticky for a late spring day. Clouds began to gather in the afternoon, and the darkening sky took on an ominous greenish cast. That afternoon a wave of tornadoes would cut through eastern Missouri and southern Illinois, killing 305 people. In St. Louis the tornado hit just after 5 p.m. The Garden was squarely in its path.

What came to be called the "Great Cyclone" touched down on the State Hospital hill on Arsenal and roared east across the Near South Side, roughly following the path of today's Interstate 44. It cut across Tower Grove Park and just grazed the southeast corner of the Garden, where the director's residence stands today, before exploding in devastation near Lafayette Park. In just 20 minutes the storm killed 137 people in St. Louis and 118 in East St. Louis, flattened 311 buildings, and damaged thousands more. The cost of the destruction in St. Louis alone was estimated at $10 to $12 million.

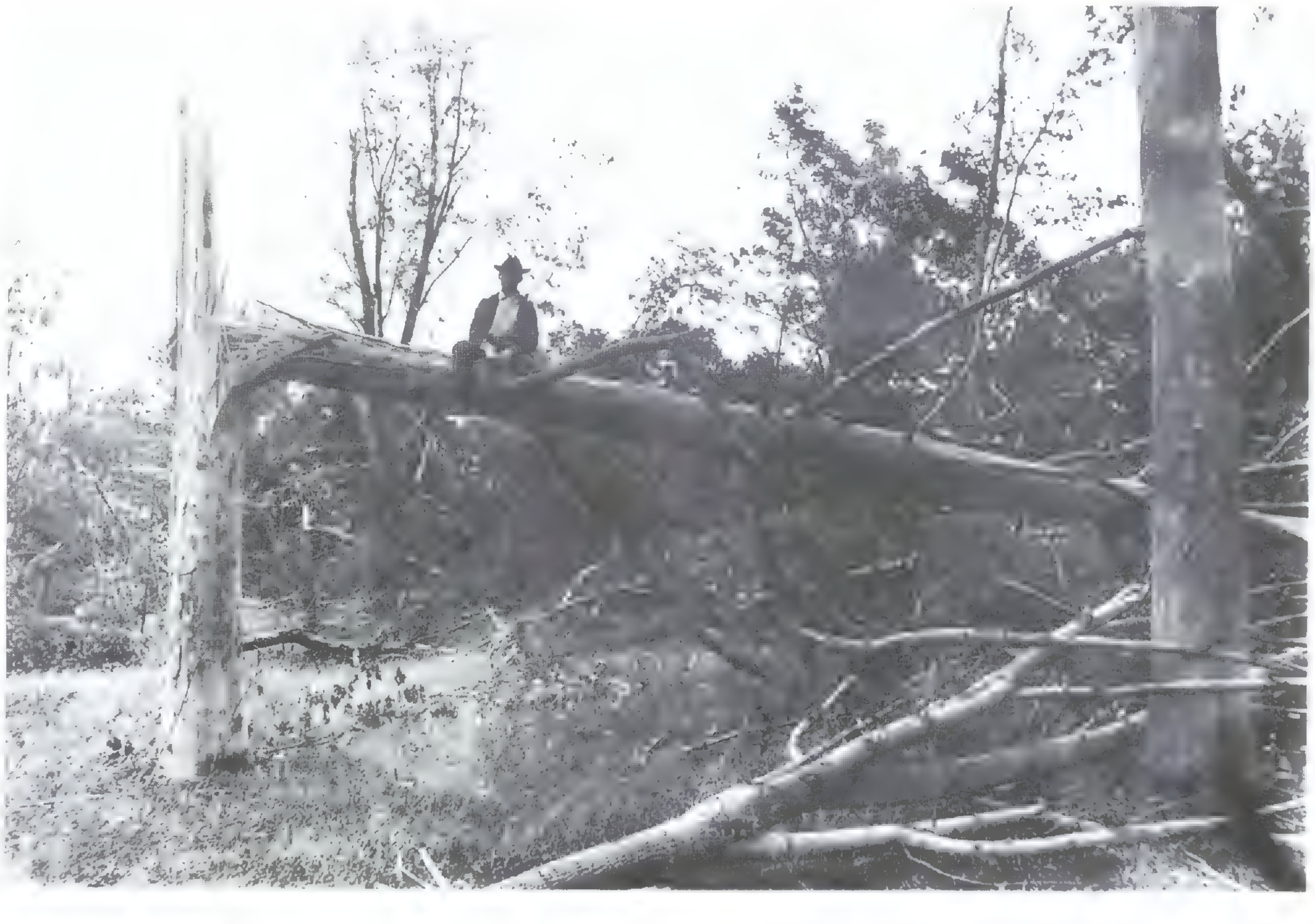
The damaged trees were made into 186 cords of firewood.

Later it was determined that the funnel cloud did not actually touch down in the Garden; all of the damage on the grounds was caused by the winds surrounding the tornado. It was enough, however, to destroy 450 trees, tear the roofs off some buildings, and demolish others. Fences, shrubbery, and paths were wrecked. Many of the trees broken off or uprooted were prized specimens 60 to 100 feet tall.

C.H. Thompson, acting director, wrote, "The skylight of the Linnean House was carried away and totally demolished. The south wing of the main gate was unroofed, and the north wing badly damaged. The brick farm barn had the second story totally demolished and carried away.... At the Lodge, two chimneys were blown down, crushing the slate and tin roof. At the residence, something like 100 slate shingles were broken and carried away, allowing the rain to enter the rooms. The transom over the front door, which was made up principally of plate glass, was badly broken."

Compared to the loss of life and property elsewhere in the city, the Garden was fortunate. The library and herbarium were undamaged, and enough trees remained to keep the grounds from appearing ruined. Extra workmen were hired, and the grounds were presentable by the following Sunday. In fact, the thinning out of the plantings on the grounds actually simplified and hastened landscaping improvements that had been planned before the Great Cyclone struck.

— From information supplied by Dr. Alan Lievens, Delle Willett, the St. Louis Post-Dispatch, and the Missouri Botanical Garden Archives.


MISSOURI BOTANICAL GARDEN ARCHIVES

Missouri Botanical Garden's World Wide Web Site

A Window On the World of Plants

http://www.mobot.org/

by Carol Davit

WHEN Marian Rosen asked her students at Conway Elementary School to produce reports on animals of the world, they looked at the Garden's Web site and immediately found information on the habitats of these animals and the plants on which they depend. When Garden research associate Dr. Fernando Zuloaga of Buenos Aires wants to find information on Argentinian plants, one of the first places he looks is the Garden's TROPICOS plant database on the Web site. He can also add data to TROPICOS via the Web, and his information becomes instantly available to other Web users worldwide.

Students, botanical researchers, and gardeners are using the Garden's World Wide Web site on the Internet to get a wealth of information directly from their personal computers. They find quick answers to gardening questions, educational activities for children, the status of threatened plants, and more.

Since the Garden's Web site was created in 1994, it has provided information at an astonishing rate. Currently users request over 80,000 files every week. The Gannet News Service has written that "Internet World Wide Web sites don't get much better than the Missouri Botanical Garden's hotspot for everything from endangered plants around the world to garden tours and teaching aids for educators."

Barringtonia asiatica **from Madagascar, a member of the Brazil nut family, Lecythidaceae. It is just one of hundreds of images you can view on the Garden's Web site.**

How It Works

The Internet is a network of computers with over 30 million users worldwide. Using telephone lines and other media to transmit information from computer to computer, the Internet provides almost instantaneous communication.

The Web is a network of computerized information that can include text, photographs, video clips, and sound. It is available to anyone linked to the Internet. The Web was created in 1991 by the British scientist Tim Berners-Lee and became popular by 1993 with the introduction of graphical software. It uses a Web "server," a computer that stores information and delivers it in the form of Web "pages" that appear on the computer screens of Internet users. Every Web site in the world has a unique electronic "address;" the Garden's address is http://www.mobot.org/.

> **"Internet World Wide Web sites don't get much better than the Missouri Botanical Garden's hotspot for everything from endangered plants around the world to garden tours and teaching aids for educators."**
>
> *— Gannet News Service*

The Garden Goes Online

Missouri Botanical Garden has participated in the Internet since the early 1990s, and Garden computer experts and researchers quickly recognized the Web as an important way to share information on a global scale. With funding from the Andrew W. Mellon Foundation, the National Science Foundation, and the U.S. Department of Commerce, the Garden was able to purchase a Web server and initiate the design of Web pages.

The MBG Homepage

The Garden's "homepage," the introductory page of its Web site, gives users options to click with a mouse on a photograph or highlighted text to retrieve more information on, for example, plants currently in bloom, Garden events, hours, and admission, and Garden history. Web site visitors can click on the word "Research" for information on current research projects, to find the E-mail addresses of Garden botanists, to see photographs of rare plants from Madagascar, and much more.

Alan Tucker of the Research Division, who created the Garden's Web site, explains that "Web site visitors can move quickly forward and backward from one Web page to another, from general to very detailed information. This way, they can find the specific information they want and also explore related topics."

The Garden's Web site also provides links to the homepages of other institutions, agencies, and organizations, including Missouri State Parks, the American Association of Botanical Gardens and Arboreta, and the Center for Plant Conservation (CPC). Instantaneous communication via the Web is especially helpful for an organization like CPC, which is an independent consortium of 25 botanical gardens and arboreta devoted to conserving threatened plant species in the United States.

From its headquarters at the Missouri Botanical Garden, the CPC Web site provides information on 494 of North America's rarest plant species, called the CPC National Collection. Anukriti Sud, manager of conservation programs for CPC, says, "We have added the research needs of certain species in the National Collection to our Web site to help direct conservation research on these rare plants."

The Garden's Web site is as unique as the Garden itself. The Web site supports the Garden's mission by giving more people a window onto the world of plants, on which we all depend.

MBG Learning Network

http://www.mobot.org/MBGnet/

The MBGnet Web site is part of the MBG Learning Network, a joint program of the Garden and The Evergreen Project, Inc., a St. Louis company that develops educational materials for elementary schools. The MBG Learning Network is an entire educational curriculum that combines the MBGnet Web site, video tapes, and a CD-ROM about animals of the world.

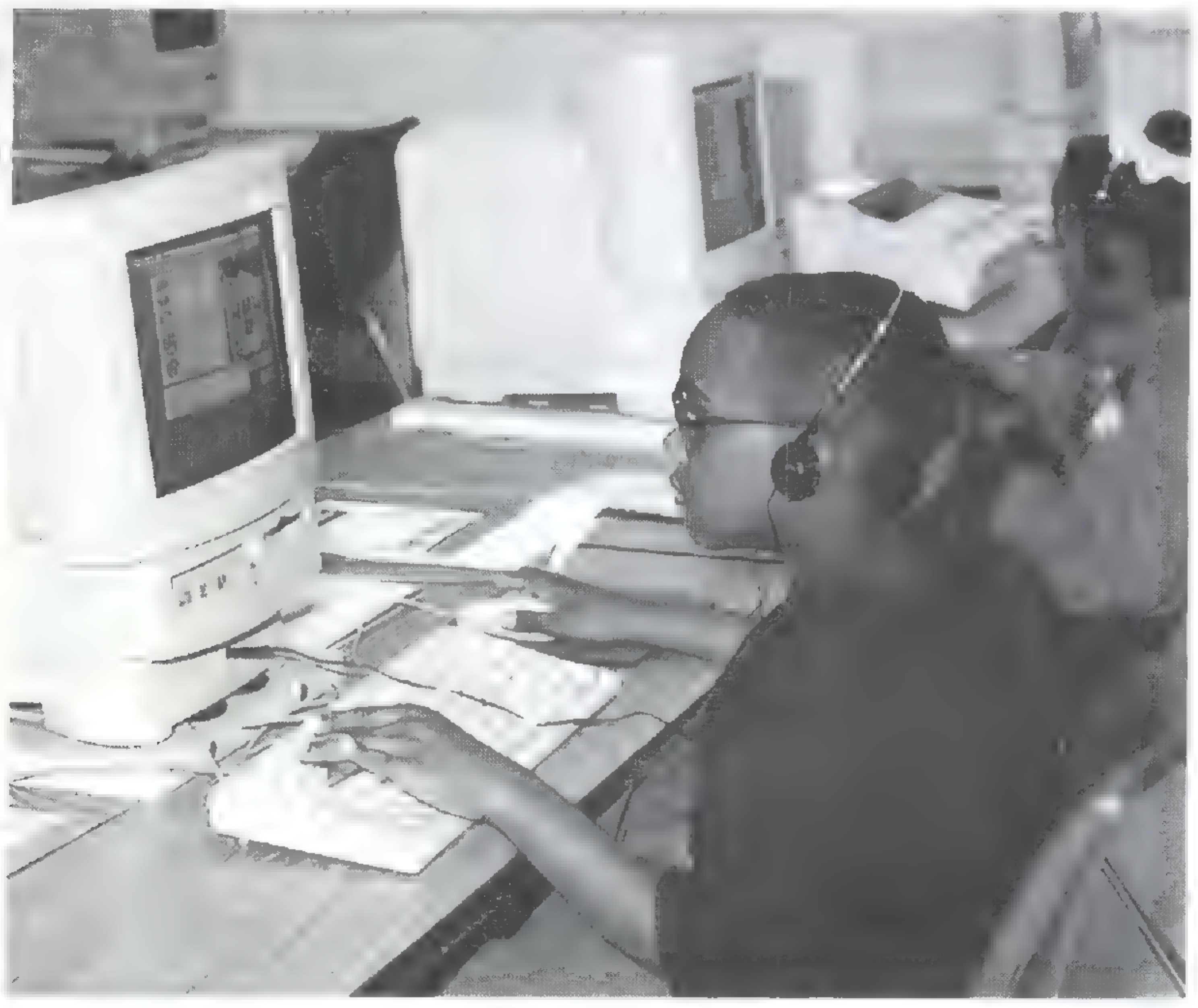
The Garden's most recent series of educational videos, "What's It Like Where You Live?", explains biomes of the world, including temperate deciduous forests, deserts, and grasslands. A second set, available in the fall of 1996, will feature rain forests, tundra, and taiga biomes.

Michael Rosenthal, a partner in The Evergreen Project, explains, "Students can watch the videos, which feature children living in different biomes of the world, then contact those children via the Web and ask them directly what it's like where they live. MBGnet is linking elementary students around the world for research projects."

MBGnet also has a "virtual garden" that lets students see photographs of desert plants in detail. A virtual garden of grassland plants is forthcoming.

In addition, MBGnet provides science project activities for students to work on in the classroom and at home with their parents. These activities can be printed from the Web page on the computer screen and reproduced for many students to use.

Marian Rosen, a teacher at Conway Elementary School in St. Louis County, and her colleagues encourage their students to be independent investigators in the classroom. Ms. Rosen said, "MBGnet is a quality resource for teachers and students. It gives the students up-to-date, immediate information and a very direct feeling of being connected to the research that scientists are currently doing."



Students in the computer lab at the Mullanphy-Botanical Garden Investigative Learning Center.

A New Member of the Rose Family

As a Participating Institution with the Center for Plant Conservation, the Missouri Botanical Garden collects and maintains seeds or living material of rare plants from our region. This spring we added a new species to our collection of rare plants.

Stern's medlar, *Mespilus canescens*, is a recently discovered member of the rose family from central Arkansas. It is a multistemmed shrub or small tree, similar to hawthorn, with showy white flowers, flaking bark, and red fruits. This critically rare species is known from only one locality in the wild, where there are a total of 25 plants.

This critically rare species is known from only one locality in the wild, where there are a total of 25 plants.

The sole population of *Mespilus canescens* is growing on private land. Due to the concern and care of the landowner, it has been protected by a conservation easement to the Arkansas Natural Heritage Program. However, the population is surrounded by agricultural land and could be threatened by chemical run-off and changes in the water table. *Mespilus canescens* is one of only two *Mespilus* species; the other is found in southeastern Europe.

Mespilus canescens was recently approved for inclusion in the Center for Plant Conservation's National Collection of Endangered Plants. The Garden has obtained 15 divisions from plants that are being maintained at a USDA facility in Arkansas. So far, the divisions are rooting and doing quite well in our production greenhouses.

We plan to plant a few specimens in the Edward K. Love Conservation Foundation Nursery at Shaw Arboretum to determine whether the species is hardy in St. Louis. If those plants survive their winter trial, look for one or two on the Garden grounds next year.

Once our plants are large enough to flower and fruit, we will determine if seeds can be stored and subsequently germinated. If so, we will send a number of seeds to the National Seed Storage Laboratory in Fort Collins, Colorado. Related species have seeds that are notoriously hard to germinate, so this may be quite a challenge for our plant propagator.

— Kayri Havens, Ph.D., MBG conservation coordinator

CPC Receives Grants

The Center for Plant Conservation has received three grants totalling $10,250 from The Bay Foundation ($6,000), the Hurdle Hill Foundation ($2,500), and the Ladue Garden Club ($1,750) to prepare a national plant conservation education strategic plan. During the course of the project, the Center will distribute its updated "Plants in Peril" brochure to middle school students in Missouri.

BARRIER-FREE GARDENING

NO ONE WANTS TO STOP gardening because of age or a disability. Fortunately, with a few minor adaptations and some carefully chosen tools, anyone can create a "custom fit" garden that is accessible and easy to enjoy.

The key for anyone who wants to garden with less strain and pain is to design a garden that is comfortable. You will need to consider location, garden size, garden structures, access to water, adaptive tools, and assistive devices.

If you already have an existing garden, start by working out a low maintenance routine. Then use your imagination to determine how to adapt your garden to work for you.

Location and Access

If you have difficulty moving around, don't wear yourself out just getting to your flower beds. Keep your garden small, in an area close to the house. All surfaces leading into the garden should be firm enough to allow for adequate traction. Paths should have no more than a gentle slope and be free of sharp turns and corners. A stout hand support on either side of the pathway may be helpful.

For wheelchair users, make paths a minimum of 36 inches wide. Add some level areas at least five feet wide to allow for the wheelchair's turning radius. For people with visual impairment, textured or brightly colored strips on the path surface are good location indicators.

Garden Structures

Containers, raised beds, and vertical planters are space efficient and increase available gardening area. In addition, they raise the soil level to a comfortable working height and keep plants within reach.

Raised beds that are accessible from only one side should be limited to a width of 2-1/2 feet, the maximum reach of a seated gardener. Raised beds accessible from two sides can be up to five feet wide, which is great if you have the space. The height and length of your raised bed are determined by your individual needs.

Due to the limited reach of the seated gardener, construct the side walls of your raised bed from the thinnest materials possible. Use rot resistant wood or recycled plastic lumber. Avoid pressure treated wood on surfaces that will come into contact with people or food crops.

It is difficult to design a raised bed that is really comfortable to use from a wheelchair, as working sideways for any length of time is tiring. Trellises, window boxes, fences, and other vertical structures support plants within comfortable reaching distance and may work better for you.

CLIFF WILLIS

See barrier-free design in the Ruwitch Garden for All.

Soil

No matter how you design your planting beds, be certain to choose a soil mix that is loose and light and provides good drainage, to allow weakened hands to work with less strain. A good soil mix may be obtained by mixing equal parts top soil, sand, peat moss, or compost. Soilless mixes are available that are lightweight and work well in raised beds and containers.

Watering

I speak from experience when I say that an enormous amount of energy is expended lugging heavy hoses through the garden. It is good advice for any gardener to locate water sources as close to planting beds as possible. Or you might consider installing a permanent or semi-permanent watering system, such as drip irrigation or soaker hoses. Timers and automated watering systems are also available to the home gardener but can be somewhat costly.

For those of us with limited pocketbooks, a hose reel and lightweight hose will save labor while keeping your hose neat and tidy. Try replacing the round handle on your water spigot with a lever to reduce gripping and twisting motions. Quick connectors, which snap your hose directly into your water faucet, further reduce stressful hand and wrist movements.

Lightweight watering wands of varying lengths help to extend your reach and direct the water flow. Choosing one that includes a shut-off valve will go a long way toward preventing those accidental overhead showers. Arranging hanging baskets on a pulley system that can be raised and lowered will also help to ease watering and maintenance tasks such as pruning and pinching. And don't forget the mulch! By mulching your garden, you will reduce your watering needs while keeping the weeds in check.

Adaptive Tools and Assistive Devices

The term "ergonomic" means "designed to be kind to the body." The number of ergonomically designed tools on the market has expanded greatly from the days when I first became interested in horticulture therapy. Just a few years ago, "adaptive tools" meant that you made them yourself.

Learn to value ingenuity, resourcefulness, and customized fit over style. PVC pipe may look funny hanging off the end of your hand cultivator, but so does walking around hunched over from an aching back. Whether you purchase new tools or adapt your old ones, be certain that they work for you.

Before you purchase a tool, pick it up and go through the motions as if you were working in the garden. In general, lightweight tools are easier to use. Look for tools where fiberglass, aluminum, and composite alloys are used for the construction of the handles and the blades. Smaller blades and tool heads will also make gardening easier, as they require less force to move through the soil.

All gardeners have limited reaching capacity. Choosing tools with longer handles allows you to bring most gardening tasks within reach. This is especially important for the seated gardener and gardeners with bad backs, as it allows for less bending and stooping.

Many gardeners have difficulties because their gripping strength is reduced. Tools with comfortable handles and grips will help to prevent fatigue. There are many ergonomically designed tools on the market today that feature padded or molded handles. Or, you can adapt your own tools by adding foam padding purchased at the hardware store.

Posture

Don't forget to examine your gardening practices and posture. Take ten minutes to warm up your muscles by gently stretching before going out to your garden for exercise. Carry or hold heavy tools and objects as close as possible to your center of gravity, which is located between your hip sockets and the base of your pelvis. Remember to keep your work load in front of you to reduce stressful bending and twisting motions. Lift with your legs and not with your back. Finally, find a friend or relative who likes to garden and is willing to help with tasks that are difficult for you.

For More Information

Visit the Joseph F. Ruwitch Garden for All at the Kemper Center to see how you can incorporate barrier-free gardening design principles and techniques in your own garden. For more information, I recommend reading *The Enabling Garden: Creating Barrier-free Gardens*, by Gene Rothert; *The Able Gardener*, by Kathleen Yeomans; or *Growing with Gardening*, by Bibby Moore. These books are available for purchase at the Garden Gate Shop or for viewing in the reference library at the Kemper Center for Home Gardening.

— Katie M. Belisle, Re.D.,
horticultural coordinator,
Kemper Center for Home Gardening

Training for Horticulture Professionals

In April the Garden and University Extension completed their first Plant Health Care Workshop and Urban Shade Tree Workshop at the Kemper Center, which was attended by 130 people in the horticulture industry. The workshops were sponsored by the Garden, Missouri University Extension, Illinois University Extension, the International Society of Arborculture, St. Louis Community College at Meramec, and the Missouri Department of Conservation. The program presented sessions on plant health care and integrated pest management. Participants also had the option of training for pesticide recertification. Another workshop is being planned for the fall of 1997.

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	*David Brown*	727-2385
Belleville Area Rose Society	*Dennis Nelson*	618-233-4609
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Barb Ottolini*	532-4644
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
St. Louis Water Garden Society	*Bonnie Alford*	962-2263
West County Daylily Club	*Roy Bohrer*	240-8780

Coming This Summer —
Watch for HortLine on the Garden's World Wide Web Site!

http://www.mobot.org/

PLANTING THE DEMONSTRATION GARDENS

Joseph F. Ruwitch Garden for All

Not just for people with disabilities, the Garden for All in the Kemper Center has ideas for anyone who wants to garden with less stress and strain. Hanging baskets are arranged on pulley systems for ease of watering and maintenance. Beds are raised to reduce bending and stooping. Vertical planters save space and are easier for the seated gardener to reach. A display of adaptive tools features designs and devices that make everyday gardening tasks easier and more comfortable.

Annuals planted in the beds and containers were selected for bright color, utility, interesting texture, or fragrance. Low maintenance perennials and shrubs were chosen over high maintenance varieties. For example, a colonnade apple tree, *Malus* 'Scarlet Spire,' saves space and is easy to harvest. A Japanese maple, *Acer japonicum forma aconitifolium* 'Maiku Jaku,' is well-suited for small garden spaces and provides a shady spot for rest and relaxation.

Located in the northwest corner of the garden, "Grandma's Backyard Garden" features old fashioned hollyhocks, four o'clocks, and the antique shrub rose 'Dainty Bess.' This nostalgic flower bed was designed to stimulate memories and promote pleasant associations with the past.

All gardeners benefit from being in touch with the natural world. Butterflies delight everyone, and the Garden for All has a central raised planter with blooms that attract butterflies, such as *Lantana camara* 'Dallas Red,' *Pentas lanceolata* 'Ruby Glow,' and *Verbena peruviana* 'Hanging Basket Red.'

The raised vegetable bed utilizes high-yielding, space-saving varieties such as the 'Patio' tomato, 'Raven' squash, and 'Bambino' eggplant. Brightly colored varieties such as 'Royalty Purple Podded' pole beans, 'Lemon Belle' and 'Pepperocini Orange' sweet peppers were selected to appeal to individuals with visual impairments.

Boredom can be a big problem for the elderly. The raised cutting and drying garden provides an assortment of annual flowers and herbs intended for use in craft projects. Celosias, globe amaranths, and salvias are wonderful for dried flower crafts, while cosmos, rudbeckias, and zinnias make cheerful fresh arrangements.

The raised bed on the south wall of the Garden for All contains houseplants such as coleus, lantanas, and purple setcreseas that provide cuttings to take home and nurture. This was particularly designed with residents of nursing homes in mind.

A raised arch planter in the center of the garden features assorted herbs, scented geraniums, and textured plants that stimulate sight, smell, taste, touch, and sound. A solar-powered water feature lends sound and a sense of tranquility to the garden.

Learn more about designing gardens for people with disabilities in "Barrier-Free Gardening" on pages 12–13.

Spoehrer Children's Garden

Robert Lee Walker's delightful bronze peacock fountain is found at the center of a child-size maze in the Children's Garden.

The Children's Garden was designed to delight a child's sense of wonder and curiosity. Whimsical topiaries and plants with bright colors, unique shapes, spots, or stripes are guaranteed to spark the imagination of young and old alike.

A-Mazing

All children love mazes, and the Children's Garden features a miniature maze just big enough for kids. *Arborvitae* 'Emerald Green' and 'Yellow Ribbon' form the outer walls, with Artic willow, *Salix purpurea* 'Nana,' and *Spirea japonica* 'Snowmound' inside. Surprises in the maze include a colorful peacock fountain and a ferocious topiary lion peeking out through the shrubbery.

A tree shaped like a baseball bat, *Acer saccharum* 'Newton's Sentry,' stands next to a ball-shaped black locust, *Robinia pseudoacacia* 'Umbraculifera.' The contorted branches of Harry Lauder's Walking Stick, *Corylus avellana* 'Contorta' delight the eye, and the pendulous branches of weeping mulberry, *Morus alba* 'Chapparel,' reminds me of childhood days spent picking berries and playing house.

Rabbit's Rainbow

The Children's Garden has several "mini-gardens," each planted with a playful or educational theme. Rabbit's Rainbow Garden is strictly for fun, with a topiary bunny sitting in a rainbow-shaped

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"Family Fun Days" at the Kemper Center – Saturdays in July!

See the Calendar on page 12 for details.

July and August – Saturday "Work & Tell" Demonstrations

10:30 a.m. to noon

Each Saturday in July and August, St. Louis Master Gardeners will conduct informal drop-in demonstrations of practical gardening techniques in the Summer Plant House. Reservations are not required, and you can stay as long as you like. You may even be put to work!

July: Children's Activities

August: Cut & Dried Flowers

CHILDREN'S GARDEN continued

border of multi-colored *Salvia splendens*. At the end of the rainbow is a pot of "gold" marigolds.

An African Savannah

Tall grasses, elephant's head amaranth, lion's mane sunflowers, and 'Safari' marigolds give the northwest corner of the Children's Garden the look and feel of the African savannah. A reclining topiary giraffe welcomes visitors.

A Garbage Can Garden

The Garbage Garden features a colorful assortment of coleus and a brightly-colored garbage can containing manure tea that make it fun to investigate composting, plant propagation, and nutrient recycling.

Scents and Smells

The brilliant violet, orange, and cerise blooms of *Pelargonium* x *hortorum* 'Picasso' form a bright border around Squirrel's Scented Garden, where you will discover a child-pleasing assortment of scented geraniums including 'Juicy Fruit' and 'Peppermint.'

Three Sisters

There is a Native American legend that corn, beans and squash are three sisters who must always live together and be happy. The Three Sisters Garden is planted in the mound-style tradition of the Iroquois, exploring the link between mythology and the agricultural practices of the North American Plains Indians.

Time & Temperature

Morning glories, four o'clocks, portulacas, and other flowers that "tell time" are featured in the Time and Temperature Garden. Colorful windsocks, a rain and temperature gauge, and an anemometer help young gardeners learn about the wind and weather.

— Katie M. Belisle, Re.D.,
horticultural coordinator,
Kemper Center for Home Gardening

Justin A. and Rose J. Naumann Experimental Garden

New Crops Offer Hope for Future

DESTRUCTIVE INSECTS AND WEEDS are a perennial source of frustration to home gardeners. To farmers, the devastation caused by common pests can make the difference between a profitable season and a failed crop. You can see results of the latest research to overcome problems that affect the global food supply when you visit the Garden's Kemper Center for Home Gardening.

This summer the Experimental Garden at the Kemper Center has four plots planted with varieties of tomatoes, potatoes, soybeans, and cotton that have been developed to combat common agricultural pests. All of these crops have been approved by the appropriate agencies of the federal government and are being grown commercially:

FlavrSavr™ Tomato

About 90 percent of tomatoes eaten in the United States are grown in California, Florida, and Mexico. They must be picked while still green and hard to survive shippping to most markets. To equal the fresh taste of homegrown tomatoes, researchers have developed the FlavrSavr tomato, which delays its softening process and allows the tomatoes to ripen on the vine longer for full natural flavor.

NewLeaf® Potatoes

To fight destruction caused by the Colorado potato beetle, many U.S. commercial growers must spray crops with insecticides up to five times during the growing season. Using biotechnology, researchers have modified potato plants with a gene from the soil microbe *Bacillus thuringiensis*, or B.t., a natural insecticide that home gardeners have used for decades. A plant with the B.t. gene gains a natural ability to ward off specific, destructive insects while remaining harmless to beneficial insects, people, birds, and other animals.

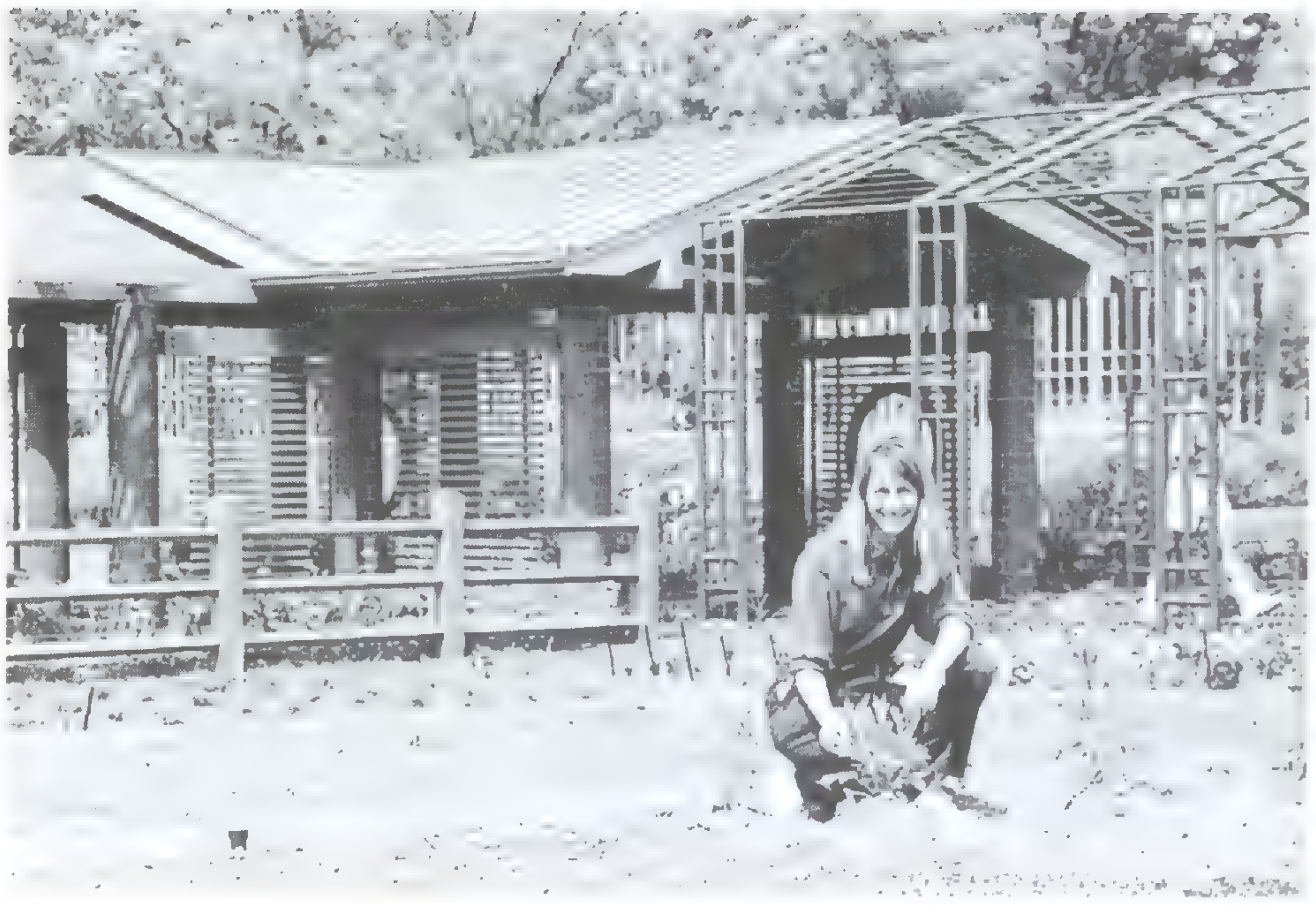
Both NewLeaf potatoes and traditional potatoes have been planted in the Experimental Garden. Later this summer both plots will be exposed to Colorado potato beetles so visitors can see the results.

Roundup Ready™ Soybeans

Roundup® is a herbicide known for its favorable environmental characteristics. However, it is a non-selective herbicide that cannot distinguish between crops and weeds. Now, with biotechnology, researchers have develped soybeans that can tolerate Roundup on the growing crop. The plots in the Experimental Garden will be sown with weeds to show how the Roundup Ready soybeans fight back.

Bollgard™ Cotton

Building on traditional plant breeding, researchers have developed cotton plants that work in harmony with nature while protecting themselves from hungry caterpillar pests. Researchers have introduced a gene from the naturally occurring soil microorganism B.t. into cotton. The gene prompts the plant to produce a protein that controls caterpillar pests. Later in the season, horticulturists will put caterpillars on both the Bollgard cotton and the control plot of unprotected cotton plants to demonstrate the effects of biotechnology on this valuable crop.



Glenda DeBrecht, a horticulturist for NatureMark of Monsanto's Ceregen Applied Genetics division, in the Experimental Garden. Later this summer, she will introduce Colorado potato beetles into the beds to demonstrate how the new plants control crop damage. Glenda visits the Experimental Garden frequently and makes sure the introduced pests do not spread beyond the trial plots. To learn more, see the exhibit on display in the Kemper Center during July.

Effective Nutsedge Control

Nutsedge, also known as watergrass or nutgrass, is a grass- like weed commonly found in wet areas of lawns and ornamental beds. This weed is difficult to control because it reproduces by underground stems and nutlets as well as from seeds that remain viable in the soil for years. A combination of cultural and chemical methods are necessary to solve the problem.

Nutsedge is a common pest in St. Louis. The Garden has about 30 acres of turf, and over the years several areas in the lawns have had severe infestations of nutsedge.

The most effective control has been with the use of a new herbicide called Manage® , introduced by Monsanto with excellent results and available from select garden suppliers. Monsanto has generously donated a supply of Manage to help the Garden control nutsedge in its lawns. To see the results, watch for signs on Garden grounds in areas where Manage has been applied.

Calendar

JULY / AUGUST 1996

July 1 Monday

Plant Clinic

10 a.m. to noon, Kemper Center. Walk-in consultations with experts from the Garden's horticulture staff, Master Gardeners, University Extension, and Missouri Department of Conservation. Free with Garden admission.

July 1 — August 16

Photographs of Madagascar

9 a.m. to 8 p.m. daily, Monsanto Hall. Fifty-five colorful photographs with accompanying text features the unique plants, animals, amphibians, and insects of Madagascar, by Dr. David Parks, a biologist at Stanford University. For 25 years the Garden has maintained a research program in Madagascar, one of the most endangered habitats on Earth. Free with Garden admission.

July 13 Saturday

Family Fun Days: Nature Masks

10 a.m. to 3 p.m., Kemper Center for Home Gardening. Make a fanciful mask out of natural materials.

July 15 Monday

Plant Clinic

10 a.m. to noon, Kemper Center. See July 1 for details.

July 20 Saturday

Family Fun Days: The Birds and the Bees

10 a.m. to 3 p.m., Kemper Center for Home Gardening. Taste real comb honey and make a bird feeder from peanut butter and pine cones that you can take home. Enjoy lectures by local beekeepers at 11:30 a.m., 1:30 and 2:30 p.m.

July 20 — 28

Saturday — Sunday

Henry Shaw Cactus Society Show

9 a.m. to 8 p.m. daily, Orthwein Floral Display Hall. The Society's 50th annual show and plant sale features a wonderful array of cactuses and succulents, including rare specimens from the Garden's collection. Free with Garden admission.

July 24 Wednesday

Henry Shaw's Birthday Party

10 a.m. to 3 p.m., Tower Grove House area. Celebrate the 195th birthday of the Garden's founder with musicians, storytellers, face painting, backyard botany, the amazing Maze, tours of Tower Grove House, and more! Cookie decorating from 11 a.m. to 1 p.m. Henry Shaw himself will be on hand for fun and entertainment; refreshments will be served. Free with Garden admission.

July 13, 20, 27 Saturdays

Family Fun Days

10 a.m. to 3 p.m., Kemper Center for Home Gardening. Come in for fun activities guaranteed to delight the whole family! There will be a different activity each Saturday: make a Nature Mask, learn all about honeybees, and make a necklace that will sprout after you take it home. All workshops, lectures, and demonstrations are free with Garden admission.

July 27 Saturday

Family Fun Days: Grow a Sproutable Necklace

10 a.m. to 3 p.m., Kemper Center for Home Gardening. Children are invited to make "sproutable" seed necklaces to wear home.

July 28 Sunday

Iris Society Sale

11 a.m. to 5 p.m. or until sold out, Beaumont Room. The Greater St. Louis Iris Society holds its popular annual sale to benefit the Garden.

July 29 Monday

Plant Clinic

10 a.m. to noon, Kemper Center. See July 1 for details.

August 1 through September 29

Edgar Denison Wildflower Paintings

10 a.m. to 4 p.m. daily, Bascom Manor House at Shaw Arboretum. Enjoy 30 lovely watercolors by the late Edgar Denison, dean of Missouri wildflower experts, and see the newly restored Manor House and its permanent exhibit "People on the Land" (see page 5). Free with Arboretum admission. Shaw Arboretum is located off I-44 at Gray Summit, Missouri; call 451-3512 for information.

August 5 Monday

Plant Clinic

10 a.m. to noon, Kemper Center. See July 1 for details.

August 19 Monday

Plant Clinic

10 a.m. to noon, Kemper Center. See July 1 for details.

August 25 Sunday

Daylily Society Sale

9 a.m. to 5 p.m., Ridgway Center. The Greater St. Louis Daylily Society holds its annual sale.

CLIFF WILLIS

Visitors will be able to enjoy the view later this summer.

Coming Attractions —

Piper Observatory To Open

This summer, watch for the new Piper Observatory to open to the public. Visitors will be able to climb the circular stairs inside the tower or use video screens at ground level for a wonderful panorama of the Historic District!

Members' Days

July 11 Thursday

Growing Ornamental Grasses

11 a.m., Shoenberg Auditorium. Michael Miller of Horticultural Consultants presents a slide lecture on how to use beautiful ornamental grasses to add pizzazz around your home. Whether your landscape is formal or natural, large or small, ornamental grasses can add texture, form, and color, and are easy to maintain. Free brochures. Seating is on a first-come, first-served basis. Free, for members only.

August 3 Saturday

Sunrise Photo Walk

Arrive in time for sunrise at 6:04 a.m. Bring your camera, have a cup of complimentary coffee, and capture your favorite Garden scenes as the sun comes up. Free, for members only.

August 29 through

September 6

Exhibit of Japanese Art

9 a.m. to 8 p.m. through September 2; 9 a.m. to 5 p.m. after Labor Day. Monsanto Hall, Ridgway Center. Free with Garden admission.

Labor Day Weekend —

August 31 through

September 2

22nd Annual Japanese Festival

10 a.m. to 10 p.m. Saturday and Sunday; 10 a.m. to 5 p.m. Monday. Processions, music, arts and crafts, food, and more! Featuring the fabulous San Jose Taiko drummers, plus the popular Candlelight Walks in the Japanese garden. See the back cover for details.

GARDEN GATE SHOP

New in the Shop!

The Shop will feature a display of Oaxacan wood carvings, the latest and most unique pieces of this fine Mexican folk art. The carvings include flowers, garden insects, animals, and decorative picture frames.

July 10 Wednesday

Lecture and Booksigning by Paul Alan Cox

4 p.m., Shoenberg Auditorium. Dr. Paul Alan Cox presents a lecture and signs copies of his new book, co-authored with Dr. Michael J. Balick, *Plants, People, and Culture: The Science of Ethnobotany.*

July 11 Thursday

Members Day

"Growing Ornamental Grasses"

Members save an extra five percent on selected books on grasses, watering accessories, and plants.

July 24 Wednesday

Henry Shaw's Birthday

1 to 3 p.m., meet Father William Barnaby Faherty when he signs copies of his books *Henry Shaw: His Life & Legacies* and *A Gift to Glory In: The First Hundred Years of the Missouri Botanical Garden, 1859-1959.* In the Garden Gate Shop.

July 27 & 28

Saturday & Sunday

Summer Sale

Members save 20 percent! Enjoy cool samples of refreshing herbal teas as you shop. 9 a.m. to 6:30 p.m. in the Garden Gate Shop.

August 3 Saturday

Members Day:

Sunrise Photo Walk

Members save an extra five percent on "how-to" photography books, film, and plants.

The Walled Garden

The Pool Garden

The Perennial Garden

The Cottage Garden

PHOTOS BY CLIFF WILLIS

1996 Garden Tour

OUR THANKS TO ALL who made the 1996 Garden Tour on June 9 a resounding success! Even the occasional showers of rain could not dampen the enthusiasm of 1,300 Garden members who toured the beautiful gardens seen here, including the "Terrace Garden" of Garden Trustee Douglas B. MacCarthy, which was featured in a recent issue of *Southern Living* magazine.

The Terrace Garden

The City Garden

The Rock Garden

The Victorian Garden

Thank You to the Garden Tour Bus Sponsors:

Ahner Florist & Greenhouses, Inc.
Baxter Gardens of Chesterfield
Gerber Garden Florist & Gifts
Hartke Nursery
Maxwell Homestead Greenhouse
Passiglia's Nursery and Garden Center
The Gifted Gardener, Inc.

And Thank You to Our Mother's Day Sponsor:

Our warmest thanks to Schnucks Markets for underwriting the decorations at the Mother's Day Luncheon, May 10, 1996.

The Finale Party, a lovely ending to the day of the Garden Tour, was held at the home of Mr. and Mrs. Ned Stanley. Shown at the party are (from left): Glee Stanley, hostess, with Sally Driemeyer and Margie Jaffe, co-chairs of the Garden Tour.

Garden Membership Reaches 33,000

In May 1996 the Garden reached a new milestone, with membership totalling 33,300 households. The Garden has the largest membership of any botanical garden in the United States and the largest of the cultural institutions in St. Louis.

"We are very grateful to the people of St. Louis who continue to support us in such record numbers," said Brenda Banjak, membership coordinator. "Our growth has remained steady, at a very strong level for a metropolitan area the size of St. Louis."

Fifth Anniversary "Best of Missouri" Market

Mark Your Calendar Today!
Saturday & Sunday, October 12 & 13, 1996
9 a.m. to 5 p.m. both days

It's bigger than ever! Plan now so you won't miss out on two whole days of our crowd-pleasing celebration of the finest Missouri foods, specialty products, handicrafts, plants, music, exhibits, children's activities, and more! It's fun for the whole family. Watch for details in your September/October *Bulletin*.

September 19, 1996

A Party for Donors of Bricks in the Members' Entry Court

Join us for a delightful evening reception exclusively for donors of bricks in the Members' Entry Court at the William T. Kemper Center for Home Gardening. All brick donations support the Partnership Campaign. Bricks may be inscribed with the names of yourself or your loved ones.

To be included in the September party, please make your brick donation by September 10, 1996. For information about making a brick donation, call the Development Office at (314) 577-9495.

Purchase Your Brick Today!

CLIFF WILLIS

Pictured at the Service Recognition Luncheon (from left): Patricia Pahl; Hazel Cox; LaVerne Gasko; Christine Fuerhoff; Mary Bard; Carol Donelan; Rosemary Armbruster; Wauneta Booth; Charlotte Ballard; Polly Kozacka; Gerry Bickel; Carol Wilson; Joyce Niewoehner; Marcia Carpenter; Bernice Nolte; Iris Guenther; Fred Clapper; Abigail Filippello; Peter Raven, director; Irene Weisenhorn; Jeanne McGilligan, volunteer coordinator; Audrey Allen; John Stephens; Sue Wilkerson, director of Division of Human Resources; and Ray Garlick.

Volunteer Service Recognition

THE GARDEN IS BLESSED with dedicated volunteers who assist the staff in every aspect of operations. In 1995, 895 men and women gave 76,644 hours. At a luncheon held at Spink Pavilion on April 16, 1996, the Garden honored volunteers who were celebrating decades of service.

Seven volunteers received awards for 20 years, and 31 people were recognized for completing ten years. Remarkably, the ten-year group included an entire class of Master Gardeners.

Twenty Year Awards

Audrey Allen, *Garden Guides*
Charlotte Ballard, *Herb Society, Boxwood Society, and Plant Shop*
Laverne Jaudes, *Herb Society and Boxwood Society*
Ilse Jordan, *Production Greenhouses*
Hazel Loewenwarter, *Garden Guides*
Joyce Niewoehner, *Herb Society*
Carol Wilson, *Horticultural Answer Service*

Ten Year Awards

Joan Abeln
Elizabeth Adamie
Rosemary Arbruster
Joann Arpiani
Mary Bard
Gerry Bickel
Wauneta Booth
Marcia Carpenter
Sonia Chetta
Frederick Clapper
Hazel Cox
Roy Cummings
Carol Donelan
Abigail Filippello
Christine Fuerhoff
Ray Garlick
LaVerne Gasko
Iris Guenther
Cathy Hey
Carl Hubenschmidt
Christy Jones
W. Boardman Jones, Jr.
Nadine Kouba
Polly Kozacka
Doris Krueger
Mary Leyhe
Joan Merz
Bernice Nolte
Patricia Pahl
John Stephens
Irene Weisenhorn

Dr. William E. Barrick, executive vice president of AABGA (left), presented the AABGA Award of Merit to Peter Raven.

Garden Welcomes AABGA and AHS

THE GARDEN welcomed members of the American Association of Botanical Gardens and Arboreta (AABGA) and the American Horticultural Society (AHS) to St. Louis, when both organizations held their annual meetings in St. Louis at the end of May.

The AABGA conference, which was hosted by the Garden, included workshops, panel discussions, tours of the Garden and Arboretum, and optional visits to natural areas in the region including a float trip on the Current River.

The AHS meeting featured tours of private gardens in St. Louis and a visit to the Monsanto research facilities where advances in biotechnology are improving plant, seed, and crop production.

Raven Receives AABGA Award

The AABGA presented its Award of Merit to Peter H. Raven in recognition of his superior contributions to the field of botany and tropical rain forest protection, and for his leadership in making the Missouri Botanical Garden one of the premier public gardens in the world. Dr. Raven received the award after delivering the conference keynote address on the role of botanical gardens today.

Dr. H. Marc Cathey, president of the American Horticultural Society (left), presents the AHS Liberty Hyde Bailey Medal to Peter Raven.

AHS Honors Raven

The American Horticultural Society (AHS) presented Dr. Raven with its highest award, the Liberty Hyde Bailey Medal, given for his contributions in horticultural education, botanical research, and leadership in developing the displays at the Missouri Botanical Garden. The award also recognized Dr. Raven's efforts to encourage sustainable agriculture and forestry in the tropics and preservation of plants and animals worldwide.

Above: Conference participants from the AABGA and AHS visited the Garden for tours with staff. Here a group tours the prairie and butterfly gardens at the Kemper Center led by Glenn Kopp, adult education coordinator.

Nancy Morin Is Named Executive Director of AABGA

Nancy R. Morin, assistant director of the Missouri Botanical Garden, has been named the new executive director of the American Association of Botanical Gardens and Arboreta, effective November 1, 1996. The announcement was made May 29 by George Briggs, president of AABGA, during the association's annual meeting in St. Louis.

Dr. Morin has been a member of the staff at the Garden for fifteen years. Serving as assistant director since 1993, she has managed strategic planning, fundraising initiatives, and a wide range of administrative responsibilities. She joined the Garden in 1981 as administrative curator of the herbarium and editor of the Annals of the Missouri Botanical Garden. In 1988 she became manager of the Department of Botanical Information Management. In addition, since 1983 she has been convening editor of the Flora of North America program, a collaborative international project that is producing the first comprehensive account and database of all plants occurring naturally north of Mexico. Dr. Morin will continue to serve as convening editor of Flora of North America, which will maintain its headquarters at the Missouri Botanical Garden.

In welcoming Dr. Morin to her new position, Mr. Briggs said, "Nancy is a wonderful advocate for things she believes in, and she believes deeply in the importance of plants, the importance of systematics, and the importance of public gardens and natural areas ...for our society." As the new executive director of AABGA, Dr. Morin will be responsible for maintaining AABGA's high standards of service while increasing its leadership role.

"Working at the Missouri Botanical Garden has taught me a tremendous amount about the role a public garden can play as a member of its community, as a source of great pleasure and peacefulness for its visitors, and as a leader in education and research," Dr. Morin said. "I feel honored to have the opportunity to use the experience I have gained here in a national context that benefits the Garden, its hundreds of sister institutions, and the many fine professionals here and at other botanical gardens."

Dr. Morin earned her A.B. degree with highest honors at the University of California at Berkeley in 1975 and received her doctorate there in 1980, followed by a year

Creating A Lasting Legacy

REMEMBERING THE GARDEN

Grace Bergner Abrams, M.D.

Dr. Bergner in her youth.

Grace Bergner, 15 months old, visited the Garden with her mother in June 1918. These photos were taken near the old Flora Gate on June 5 and June 12, 1918.

IN JUNE 1918, fifteen-month-old Grace Elizabeth Bergner visited the Garden with her mother, running about the flower beds near the Flora Gate. Upon her death in October, 1995, Grace Bergner left a portion of her estate to the Garden. Her magnificent gift was just one of many acts of generosity in a lifetime of remarkable achievement.

Dr. Bergner was a physician for 44 years before her retirement in 1987. She was formerly on the staffs of Barnes, St. Luke's, and Missouri Baptist hospitals, and was a former assistant professor of clinical medicine at Washington University School of Medicine. She graduated from Washington University in 1939 and earned her medical degree from Washington University School of Medicine in 1943, interned at Barnes Hospital, and received post graduate training at Yale and Harvard universities. She joined Grant's Clinic in St. Louis in 1947 and continued her practice in internal medicine there until her retirement. She became a member of the St. Louis Metropolitan Medical Society in 1947 and was made a life member in 1987.

In 1949 Dr. Bergner married Dr. Morris Abrams, a St. Louis urologist, who died in 1991. Grace and Morris Abrams loved to garden at their beautiful home in Ladue and shared their home with a wide circle of loving family and friends.

By all accounts, this brilliant woman illuminated the lives of everyone she met with her kindness, her humor, and her vibrant interest in life. Through her extraordinary generosity to the Garden, Grace Bergner Abrams's spirit will continue to benefit the lives of her friends and generations of people to come.

A LEGACY FOR ST. LOUIS

Edward Otto Roehr and Eileen Meyer Roehr

VISITORS TO THE GARDEN may notice two flowering dogwood trees on the grounds and two bronze signature bricks in the Members' Entry Court at the Kemper Center that are inscribed with the names of Edward O. Roehr and Eileen M. Roehr. These simple inscriptions pay tribute to the memory of a husband and wife who were married for over 50 years. Through their generosity, Mr. and Mrs. Roehr's estate has provided a wonderful gift to support the Garden.

Mr. and Mrs. Roehr were members of the Garden since 1960 and loved to take walks on the grounds together. They devoted their lives to the Ed Roehr Radio Company, which still maintains its home offices at 2710 Locust Street where Mr. Roehr founded the company in 1940. Mr. Roehr died in 1993, leaving the company to his employees. Mrs. Roehr passed away in 1988.

Mr. Roehr was a native St. Louisan. His father, Otto Roehr, laid out the flower beds for the 1904 World's Fair. Like his father, Mr. Roehr loved to garden; the landscaping at his home in Glendale was beautiful, especially the pink geraniums that always bloomed in the windowboxes. Mr. and Mrs. Roehr visited gardens all over the world during their extensive travels. They both served on the board of Grace Hill House for many years and were active in the Emmanuel Episcopal Church of Webster Groves.

Mr. Roehr was fond of saying that "St. Louis is a well-kept secret." The legacy that he and Mrs. Roehr have left to the Garden helps to ensure that generations of St. Louisans will benefit from the Roehrs' love of the Garden and pride in their city.

MORIN continued

of postdoctoral research at the Smithsonian Institution. At the Garden, she has also served as an adjunct professor of biology at Washington University and the University of Missouri-St. Louis. In 1992 she was named the Anne L. Lehmann Curator of North American Botany.

Dr. Peter H. Raven said, "Nancy's abilities will continue to be important for the benefit not only of our Garden but of many additional colleagues in her new role. We all wish her the very best in her new position."

The AABGA was founded in 1940. Today it serves 410 institutions and some 2,000 individual members, including horticulture and landscape design professionals. The association is based at Chanticleer, a botanical garden in Wayne, Pennsylvania near Philadelphia, but at the end of 1997 it will move to Longwood Gardens in Delaware.

Research in Vietnam

by Carol Davit

Garden botanists are learning more about the extraordinarily rich biodiversity of Southeast Asia and the global distribution of plant species.

DURING THE PAST FEW YEARS, an exciting new research opportunity has unfolded for Garden botanists: the chance to study the rich plant life of Vietnam. The number of plant species in Vietnam is estimated at 12,000, many of which grow nowhere else on Earth. The changing political and economic climate in Vietnam has made scientific endeavors more feasible than in the past, and Vietnamese botanists are eager to work with scientists from other parts of the world to increase knowledge of Vietnamese flora. Garden researchers are enthusiastic about this opportunity to better understand the unique plants of southeast Asia and to increase their knowledge of the global distribution of plant species.

In 1993 Garden researcher Dr. Daniel Harder became the first western botanist in twenty years to be invited by the Vietnamese government to meet with botanists in Hanoi. Dr. Harder visited staff of the Institute of Ecology and Biological Resources (IEBR) of the National Center for Natural Sciences and Technology in Hanoi. As a result of his visit, the Garden signed a formal agreement in 1994 to increase collaboration in botanical studies. Several Garden research projects have already been made possible through this agreement.

Although Vietnam is a relatively small country with an area of 331,688 square kilometers, the latitudinal expanse of this area accounts, in part, for the extreme differences in climate and the diversity of habitats and vegetation of the country. The mountain ranges, tropical and temperate forests, wetlands, and waterways support a large number of plants and animals, many of which are endemic, or unique, to Vietnam. Approximately 7,000 of the estimated 12,000 plant species have been scientifically described; nearly 2,300 are utilized by the Vietnamese for food, medicines, fodder, fuel, building materials, and other purposes. The rich diversity of fauna includes 273 known species of mammals, 773 species of birds, and 130 species of reptiles.

Recent biological investigations in Vietnam, especially in remote areas, have revealed many species of plants and animals previously unknown to science. Vietnamese biologists made the startling discovery in 1992 of the new genus *Pseudoryx*, the Vu Quang ox, and also identified two new species of deer. It is extremely rare to discover large, unknown animals in the world today; only three new genera of mammals have been described this century.

The excitement over the rich biodiversity of Vietnam is paired with alarm over the loss of its natural habitat. Forest cover was reduced by nearly one-half during four decades of warfare, and only two million hectares of primary forest remain. Since the end of the Vietnam war, deforestation has continued under the pressures of uncontrolled logging, a high population growth rate, and intensive agriculture. The fragmentation of forest tracts and unregulated hunting have resulted in the extinction of innumerable species.

To promote conservation of biological diversity and watershed protection, the Vietnamese government has established an extensive network of national parks, forest reserves, and protected game management areas. These areas will protect nearly three percent of the country's land area, a total of 1.1 million hectares, of which 60 percent is forested.

The Garden is helping to document the flora of Vietnam, an essential step for conservation planning and action. In 1994, Dr. Harder collected plants in Vietnam with Dr. Nguyen Tien Hiep, vice head of the Department of Botany at IEBR, and Heidi Schmidt, herbarium assistant at the Garden. The three collected nearly 1000 specimens from primary forest and distributed them to herbaria in Hanoi, Ho Chi Minh City, St. Louis, and Paris.

During this visit, the formal collaborative agreement was signed by IEBR and the Garden. Goals include increased collaboration in botanical field studies, herbarium research, specimen and professional exchanges, and technical development.

Garden researchers are initiating work with Vietnamese botanists to revitalize the Flora of Vietnam as an international collaborative project. The Garden is currently assisting Dr. Leonid Averyanov of the Komarov Botanical Institute in St. Petersburg, Russia with his floristic study of the highlands of south Vietnam.

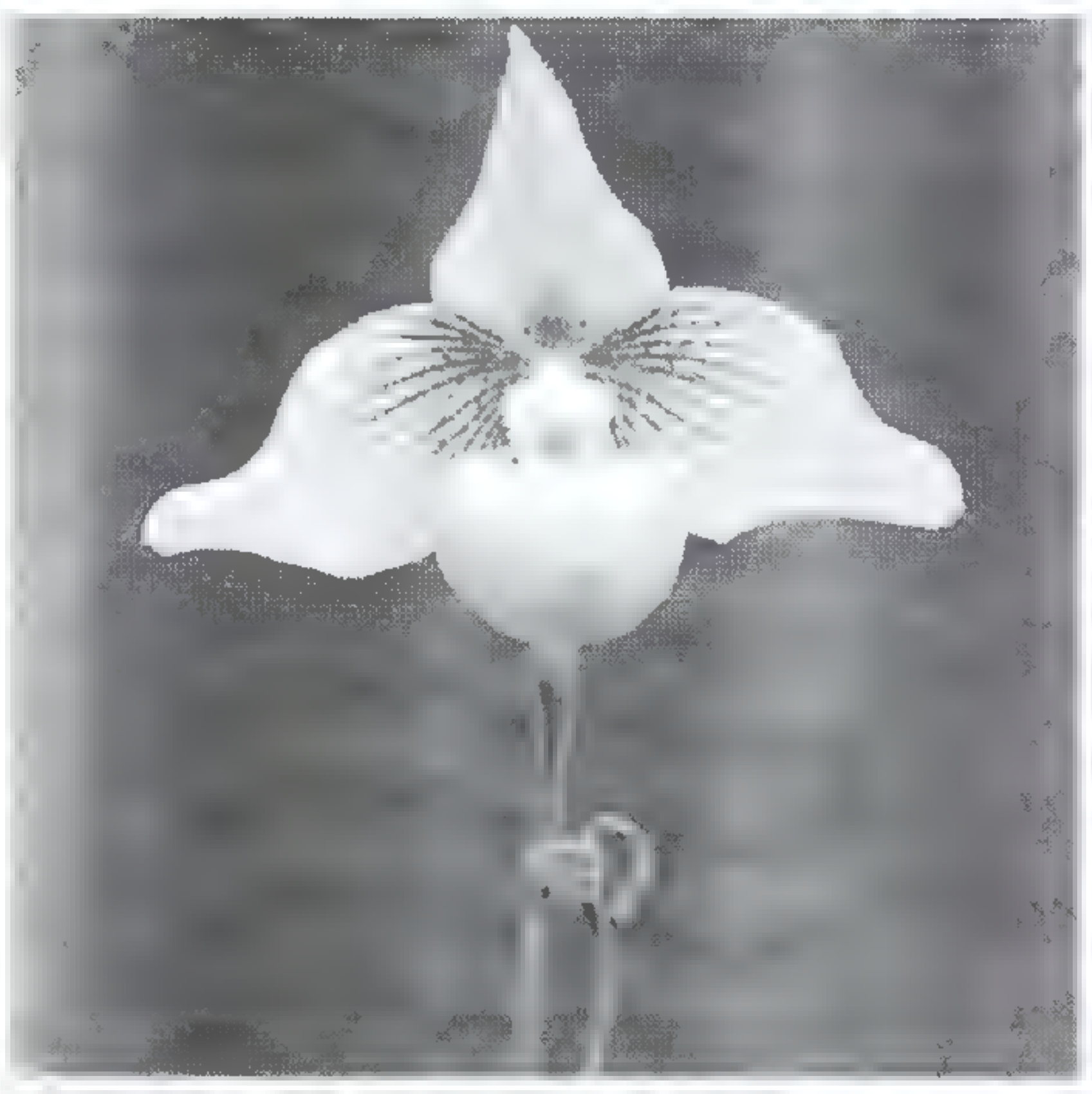
In 1995 Dr. Thomas B. Croat, P.A. Schulze Curator of Botany at the Garden and a specialist in the systematics and floristics of the Araceae (philodendron or aroid family), travelled to Vietnam to collect aroids. Dr. Croat has collected extensively throughout Central and South America, where the world's greatest diversity of aroid species occurs. The Asian tropics, however, has more aroid genera and a richer array of tuberous species than the neotropics. In Vietnam, Dr. Croat was able to see many genera in the wild for the first time and make direct comparisons with neotropical genera.

In February of this year, Dr. Henk van der Werff, associate curator and head of the Department of Taxonomy at the Garden, received a grant from the

DANIEL HARDER

HEIDI SCHMIDT

Above left: Dr. Nguyen Tien Hiep, shown collecting plants at Tam Dao Mountain. Above, right: Sông Lô, Tuyen Quang Province. Center, left: MBG researchers discovered this recently described species of orchid, **Paphiopedulum jackii,** *growing in primary forest in Vietnam. Center, right: Den Ngoc Son Temple, Hanoi.*



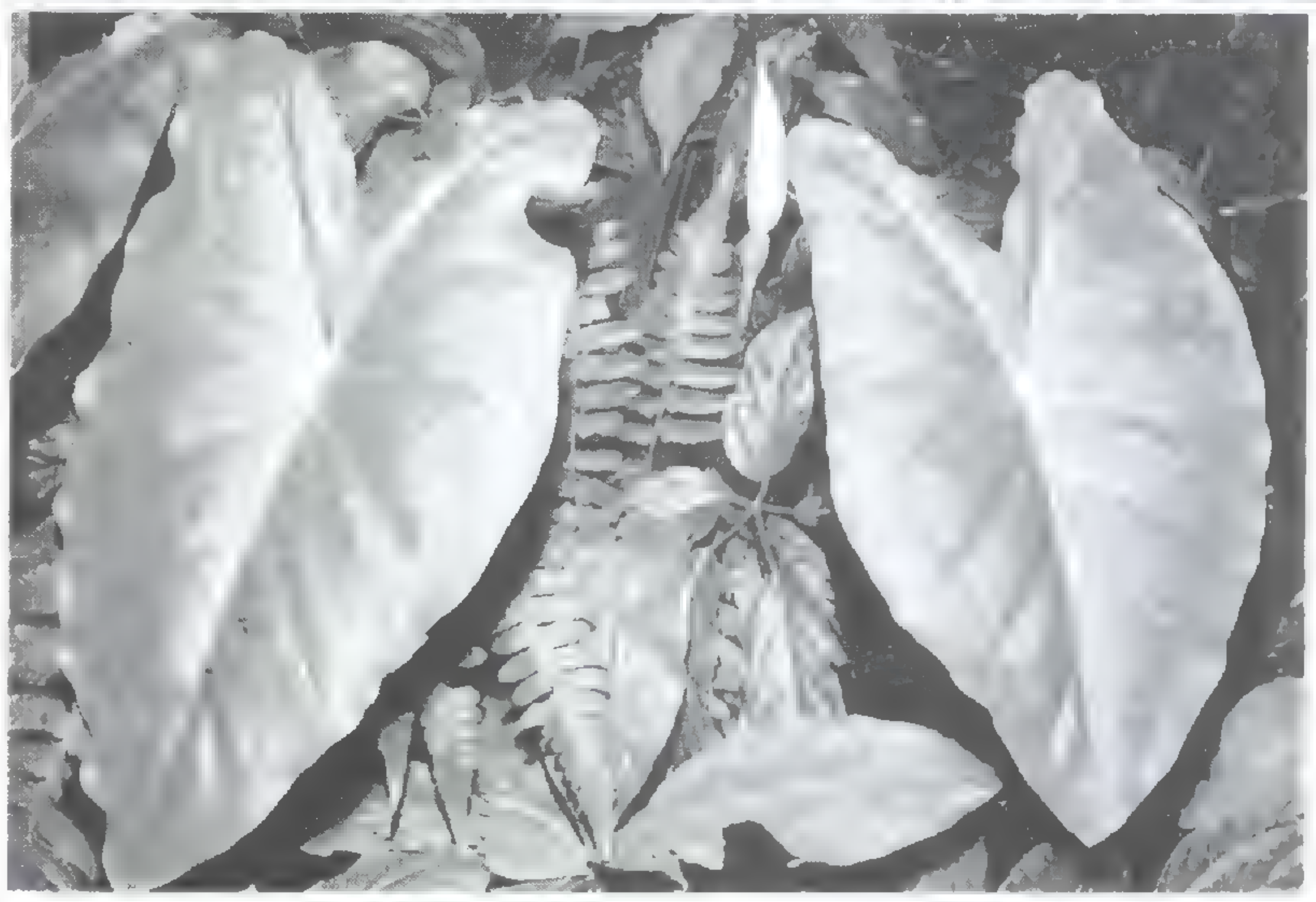
DANIEL HARDER

National Geographic Society to conduct field work in Vietnam. He and Dr. Porter P. Lowry II, associate curator and head of the Garden's Africa and Madagascar Department, will travel to Vietnam in early spring 1997 to collect plants.

Dr. van der Werff will collect specimens of the Lauraceae, or laurel family, the focus of his research since 1983. The Lauraceae is largely a tropical family, although three species native to Missouri include sassafras, *Sassafras albidum*, and spice bush, *Lindera benzoin*. Since 1990 Dr. van der Werff has been working with an international group of Lauraceae specialists to develop a new classification of the family, which contains over 2,500 species. He and his colleagues have collected Lauraceae in Central and South America and Africa, but have few specimens from southeast Asia, an area with many species.

Dr. Lowry is a specialist of the Araliaceae, or ginseng family, with about 1,500 species of mainly tropical trees and shrubs. As with Lauraceae, a high diversity of Araliaceae species grows in Southeast Asia. Classification schemes for the Araliaceae are highly disputed, and good quality specimens of species growing throughout the world are necessary for a comprehensive analysis of the family.

Travel and research in Vietnam have provided Garden botanists with outstanding opportunities to increase knowledge of the world's plants. The Garden is working to find funding to expand future research efforts in Vietnam and other countries in Southeast Asia.



THOMAS CROAT

Left: An unknown aroid species of Alocasia *in Cuc Phong, one of about seventy species in this Asian tropical genus. It is a close relative of the crop plant taro, a basic food staple in many countries.*

National Geographic Society Visits Garden

Representatives of the Committee for Research and Exploration of the National Geographic Society visited the Garden in May. Shown at a dinner held in honor of the visit are (from left): Dr. Daniel K. Harder, a Garden botanist whose work is supported by the National Geographic Society; William H. T. Bush, president of the Garden's Board of Trustees; Dr. John Steele, a member of the Committee for Research and Exploration; Dr. George Stuart, chairman of the Committee.

What Do Chimpanzees Eat?

A Botanical Survey in Tanzania

by Carol Davit

ROY GEREAU, a botanist in the Garden's Research Division, spent five weeks in early spring collecting plants in northwestern Tanzania at Gombe National Park, which was established by the pioneering primatologist Dr. Jane Goodall. The Garden was offered a subcontract from the University of Minnesota to conduct a vegetation survey of the Park, where University primatology researchers are studying group dynamics, reproductive success, and habitat utilization in chimpanzees and baboons.

Gereau has collected plants extensively in Tanzania but never before in the presence of chimpanzees. "Working in the middle of a troop of chimps was pretty entertaining," he said.

The Garden has served as the North American center for the study of African botany since 1970, and houses the nation's largest collection of plant specimens from Africa. Gereau is one of 13 full-time botanists working in the Africa and Madagascar department; several of Gereau's colleagues are stationed abroad. Gereau, who is fluent in Swahili, collaborates with many African botanists. During his stay at Gombe he worked with Mr. Frank Mbago of Dar es Salaam University Herbarium. Gereau says that "Gombe is a superbly well organized place with nice working conditions and a very nice social atmosphere."

Gombe National Park was established by the pioneering primatologist Dr. Jane Goodall.

Gereau's work had two goals: to identify the food plants of chimpanzees and baboons and to conduct a complete inventory of the flora of Gombe. When Dr. Goodall began her research on chimpanzees in 1960, she habituated troops of chimps to humans, and from 1968 to the present, local people have been following the troops every day to record their behavior. Gereau says that "The chimps were idly curious about us until they figured out that we didn't have any food, and then they went back to their own politics."

Lists of the some of the primates' food plants have been compiled by researchers at Gombe in the local language of Kiha and in the Tanzanian national language of Swahili. In order to share the botanical information with a larger community of primatologists and botanists, it is necessary to identify the plants using scientific, or Latin, names.

Gombe is located in the Rift Valley along the coast of Lake Tanganyika and is home to chimpanzees, baboons, red-tailed colobus monkeys, vervet monkeys, and leopards. The diversity of food plants at Gombe, such as oil palms and many species of figs, contributes to the diversity of chimpanzees and other primates at the park.

"Gombe is really an intense mosaic of vegetation," says Gereau. "Over 16 small streams dissect the park from the summit of the Rift at the eastern boundary of the park and feed into Lake Tanganyika to the west. There's tall riverine forest in the moist valleys of these streams, and open, dryer forest — called 'miombo' in Swahili — along the ridge tops."

Gereau and Mbago worked together to identify at least to genus all but four of the chimps' food plants from a list of over 60. They also made 504 collections of plants in sets of seven duplicates; three will be kept in herbaria in Tanzania, one in the Garden's herbarium, and the remainder distributed by Garden staff to specialists around the world for identification.

Results of the collecting trip not only will help primatologists understand better what the primates eat and how they use the natural resources of Gombe but will contribute to the body of botanical knowledge of eastern Africa. Gereau will compile a checklist of the flora of Gombe, which will be one chapter in *Floristic Studies in Tropical Africa and Madagascar*, an upcoming title in the Garden's *Monographs in Systematic Botany* series. Included in the Garden's contract was the agreement to provide herbarium management training for Mbago, who worked with Gereau in the Garden's herbarium for six weeks in April and May (see below).

Preparing plant collections in the field at Gombe National Park in Tanzania are (from left): Datomax Selanyika, warden at the park; Canisius Kayombo, MBG field assistant; MBG botanist Roy Gereau.

Visitors from Africa

Recearchers from Africa visited the Garden this summer to work in the herbarium. Front row, from left: John Amponsah, Ghana; Noah Zimba, Forestry Department Herbarium, Zambia; Frank Mbago, University Herbarium, Dar es Salaam, Tanzania. Back row, from left: Benny Luwiika, Mount Makulu Herbarium, Zambia; Pierre Jules "Coca" Rakotomalaza, Parc Botanique et Zoologique de Tsimbazaza, Madagascar; Dr. James S. Miller, head of the Garden's Department of Applied Research; and Garden researchers Dr. Daniel K. Harder and Heidi H. Schmidt of the Africa and Madagascar Department.

UMSL Student Receives Rockefeller Grant

CLIFF WILLIS

ARMAND RANDRIANASOLO, a Malagasy doctoral candidate who is studying at the Garden, has been awarded a Rockefeller Foundation African Dissertation Internship Award. He is working toward a Ph.D. at the International Center for Tropical Ecology of the University of Missouri–St. Louis.

The Rockefeller African Dissertation Internship Awards enable outstanding African graduate students enrolled in North American universities to undertake supervised doctoral research in Africa as a means of increasing the relevance of their work to a future career in the region. The $22,875 grant will allow Randrianasolo to conduct research for his dissertation at the Parc Botanique et Zoologique de Tsimbazaza in Madagascar.

Randrianasolo's dissertation is entitled "Systematics and Evolution of Three Genera of Malagasy Anacardiaceae (Sumac family)." His advisor is Dr. James S. Miller, head of the Garden's Department of Applied Research.

Madagascar's flora and fauna are among the most unique, and most threatened, on Earth. Missouri Botanical Garden has maintained an active research program on the island of Madagascar for almost 25 years. Under the supervision of Garden researchers Dr. Porter P. Lowry II and Dr. George Schatz, training future botanists is a central component of the Garden's program in Madagascar.

Dr. P. Mick Richardson, manager of graduate studies at the Garden, said, "We are delighted that Armand has received this outstanding distinction for his fine work, and we are very grateful to the Rockefeller Foundation for making his project possible."

CLIFF WILLIS

Students from The Wilson School work in their woodland plot, assisted by their teacher Rob Laux, LREC Master Ecologists, and student volunteers from Villa Duchesne.

LITZSINGER ROAD ECOLOGY CENTER

Restoring Woodland Wildflowers

DURING THE PAST SCHOOL YEAR, students from The Wilson School 4th, 5th, and 6th grades worked with volunteers from Villa Duchesne and Master Ecologists to help restore the woodland at the Litzsinger Road Ecology Center. About 55 students visited the LREC three times to remove, by hand, invasive plants from a woodland plot. This spring the children planted the area with native wildflower species, including bloodroot, *Sanguinaria canadensis*; Virginia bluebells, *Mertensia virginica*; green dragon, *Arisaema dracontium*; columbine, *Aquilegia canadensis*; and wild geranium, *Geranium maculatum*.

The student volunteers from Villa Duchesne were participating in a service learning program. Master Ecologists are trained to assist the staff at the LREC. The eco-restoration projects teach students about the ecology of Missouri's woodlands and help native wildflowers bloom again.

Arboretum Needs Volunteer Teacher-Naturalists

DO YOU LOVE THE OUTDOORS, want to learn more about the natural world, enjoy children, and want to have a positive effect on the Earth? Come join a lively and committed group of people who create positive experiences for school children.

Shaw Arboretum is recruiting volunteers for a new class of Teacher-Naturalists. These volunteers lead outdoor classes for school children, with activities focusing on sensory awareness and ecology. The training program for new Teacher-Naturalists begins in September.

People seeking this position must be available during the week; enjoy working with children, especially in an outdoor setting; be flexible with a variety of teaching conditions; and possess a keen interest in learning more about natural history. Some knowledge of ecology and natural history would be helpful, but is not necessary.

If you are interested, please call Miriam Krone at 451-3512 for more information.

PRAIRIE TRAIL GUIDE

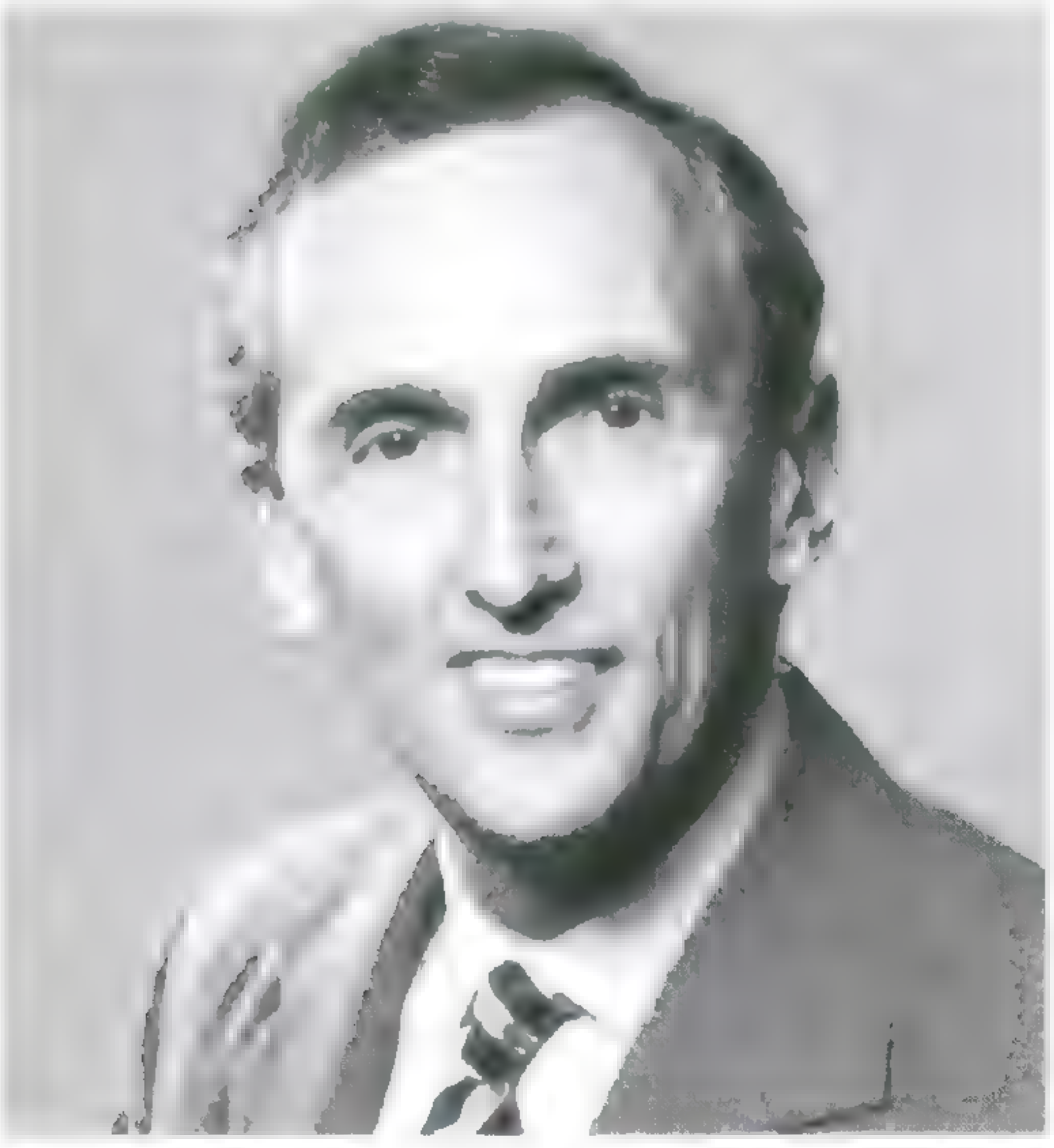
New Prairie Trail Guide

AN illustrated trail guide to the tallgrass prairie at Shaw Arboretum is now available. The booklet was written by Dr. James C. Trager, staff naturalist at the Arboretum, and illustrated by Linda S. Ellis. Development of the guide was made possible by a generous donation from the Federated Garden Clubs of Missouri, Inc. Additional support given by the family and friends of Marjorie V. "Perky" Cates.

The guide leads visitors along a marked trail through the restored prairie at the Arboretum and explains the complex ecosystem. Each stop on the trail has a story to tell, plants to notice, features to see and understand. The booklet also has references for teachers, children, and further reading.

The new trail guide is available at the Arboretum Visitors' Center and in the Garden Gate Shop for $1.

Three new members were added to the Garden's Board of Trustees on February 21, 1996. Robert B. Shapiro and Pamela Ebsworth were elected to serve four-year terms, and E. Desmond Lee was named an Emeritus Trustee.



Robert B. Shapiro

Robert Shapiro is chairman and chief executive officer of Monsanto Company. He was previously executive vice president of Monsanto and president of its Agricultural Group.

Mr. Shapiro joined Searle, now a unit of Monsanto, in 1979 as vice president and general counsel. In 1982, he was named president of the newly formed NutraSweet Group of Searle. When Searle was acquired by Monsanto in 1985, Mr. Shapiro was appointed chairman and chief executive officer of The NutraSweet Company, a subsidiary of Monsanto.

Before joining Searle, Mr. Shapiro was vice president and general counsel for General Instrument Corporation. Previously he had served as an attorney with a New York law firm and as a professor of law at Northeastern University in Boston and the University of Wisconsin in Madison. He served in government as special assistant to the general counsel and later to the Undersecretary of the U.S. Department of Transportation.

Mr. Shapiro is a member of the President's Advisory Committee for Trade Policy and Negotiations and the Trade and Environmental Policy Advisory Committee. He has held numerous appointments to government advisory groups. Currently he serves on the boards of directors of Citicorp, Juvenile Diabetes Foundation International, U.S.-Japan Business Council, Inc., and Worcester Foundation for Biomedical Research, among others.

Mr Shapiro is active in the St. Louis community. He is a member of Civic Progress, Inc., and serves on the boards of Washington University and Barnes-Jewish Hospital. He is a 1959 graduate of Harvard College and a 1962 graduate of Columbia University School of Law.

David W. Kemper, first vice president of the Board of Trustees, said, "Monsanto's support for the research work at the Garden...enables our two entities to operate as partners, both dedicated to the global ideal and the global necessity of sustainable development."

Mr. Shapiro delivered the keynote address at the groundbreaking ceremonies for the Garden's new research center on April 20. Please see page 6 for the text of his speech.

E. Desmond Lee, Jr.

Edgar Desmond Lee, Jr. is well known to Garden members for his extraordinary generosity to many St. Louis institutions. In 1994 he and his family established the E. Desmond Lee and Family Education Program to support science education outreach at the Garden, the St. Louis Science Center, and the Saint Louis Zoo. The program increases the quantity and quality of science education opportunities for underserved school children in St. Louis.

In 1995, Mr. Lee and his wife made the naming gift for the Garden's E. Desmond and Mary Ann Lee Family Educational Center at 4475 Castleman. The new facility provides expanded office and classroom space for the Garden's Education Division. In November, 1995, Mr. and Mrs. Lee received the Henry Shaw Medal, the Garden's highest award.

Mr. Lee founded Lee/Rowan Company in 1939, the year before he graduated from Washington University. After selling the company in 1993, Mr. Lee dedicated himself to finding ways to benefit the St. Louis community. He is especially interested in providing educational opportunities for less privileged children. When the science education program was announced, he said, "Helping to reach out to inner-city children is one of the greatest joys I will ever expect to receive. The essence of my dream is to challenge the children through their teachers to open up a new world of scientific thinking."

Mr. Lee serves on the board of directors of the Metropolitan YMCA, Columbia College, Herbert Hoover Boys' and Girls' Club, the St. Louis Science Center, Ranken Technical College, St. Louis Symphony, St. Luke's Hospital, and the Saint Louis Zoo. He is an elder of the Presbyterian Church and has received numerous awards in recognition of his philanthropic activities.

Peter H. Raven said, "Des Lee is extraordinarily generous, not just with money but with his time and enthusiasm. His commitment to accomplishing meaningful change in our society is a splendid example to all of us, and we are very fortunate to have him join our Board of Trustees."

Pamela Ebsworth

As an executive in the travel industry for twenty years, Pamela Ebsworth specialized in arranging trips and tours for organizations such as the Audubon Society, The Nature Conservancy, the Smithsonian Institution, and many others. Her work encouraged her interest in natural history and led to a strong personal commitment to conservation as a member of the National Council of the World Wildlife Fund.

Mrs. Ebsworth moved to St. Louis five years ago upon her marriage to St. Louisan Barney A. Ebsworth. She said, "As soon as I met Peter Raven, I knew the Garden was a place where I wanted to get involved. The Garden's leadership in research and conservation is important on an international scale, and it is such a wonderful facility for the community. Perhaps most important, to me, is the Garden's emphasis on education for people of all ages."

Pam Ebsworth grew up in Seattle and graduated from the University of Washington with a degree in anthropology. She is a member of the Garden Club of St. Louis.

Peter Raven said, "It is a great pleasure to welcome Pam Ebsworth to the Board of Trustees. Her experience with conservation organizations at the national level and her marvelous interest and enthusiasm are a wonderful addition, and we are looking forward to working with her."

Trustees Honor Service

At the meeting of the Board of Trustees in April, the Board recognized three individuals for outstanding service to the Garden.

CLIFF WILLIS

William H. T. Bush, president of the Board, with Robert Kresko

Robert E. Kresko

The Board honored Bob Kresko for 15 years of service. During that time, Mr. Kresko served as chairman of the capital fund drive in 1987, as president of the Board from 1989 to 1991, and helped the Campaign for the Garden to exceed its goal by $4.4 million. Mr. Kresko and his family recently gave funds to develop the splendid new Victorian Garden that is under construction to the east of Tower Grove House.

CLIFF WILLIS

Mr. Bush with Louis Sachs

Louis S. Sachs

Mr. Sachs also was honored for his 15 years of service to the Board. With his background in construction, he has been on the Building Committee since 1980, serving as its chairman 1980-85. Mr. Sachs has played a vital role in planning new construction at the Garden, supplying expertise and consultation including a major in-kind donation of services from Sachs Electric. His professional advice and generosity have been invaluable to the Garden during his 15 years on the Board.

Jane Tschudy

From 1994 to 1996, Jane Tschudy served as president of the Garden Members' Board. During Mrs. Tschudy's tenure, the Members' Board took the lead in raising money for the Members' Entry Court garden at the William T. Kemper Center for Home Gardening. Garden membership grew to an unprecedented 32,000 households, and held a gala celebration, "Year of the Chinese Garden," in September, 1995.

Mr. Bush presented Jane Tschudy with a handcrafted ceramic plate designed exclusively for the Garden by Kate Dunn of Hellmuth, Dunn and Co.

BEHIND THE SCENES

Kevin L. Mattingly

KEVIN MATTINGLY, superintendant of General Services, has been on the Garden staff full time for the past 20 years, but he has been here much longer than that. Kevin grew up in the neighborhood and came to the Garden for classes; an issue of the Bulletin from May 1962 shows Kevin with a group of kids in front of the Climatron.

W.LIS

Kevin Mattingly

As superintendant of General Services, Mattingly works with staff in housekeeping and maintenance. He began working at the Garden part-time while he was a student. He also worked in Tower Grove Park as a tree trimmer. He graduated from Washington University in 1977.

IN MEMORIAM

Jules D. Campbell

MISSOURI BOTANICAL GARDEN ARCHIVES

JULES DESLOGE CAMPBELL, an emeritus trustee of the Missouri Botanical Garden, died on May 15, 1996, after many years of faithful service to the Garden. Mr. Campbell maintained a lifelong interest in the Garden. As a young boy, he accompanied his grandfather, Jules Desloge, on visits to the Garden. Mr. Desloge, for whom Mr. Campbell was named, was an official of Boatmen's Bank and one of the three official witnesses of Henry Shaw's Will, which established the Garden in perpetuity.

Mr. Campbell became an *ex officio* trustee of the Garden in 1970, in his capacity as president of the St. Louis Academy of Science. Under terms of Henry Shaw's Will, the president of the Academy and his successors serve on the Garden's Board by virtue of their position. A member of the Academy since 1945, Mr. Campbell was interested in the role the Academy plays in educating and informing the public about science. After eighteen years as president of the local Academy and Garden trustee, Mr. Campbell was succeeded by Thomas O. McNearney, Jr. Mr. Campbell then became an emeritus trustee of the Garden in 1990.

Throughout his years of service as a Garden Trustee, Mr. Campbell was active on many vital committees, including Building and Grounds, Arboretum, and Henry Shaw Annual Giving Campaign. For many years he was active as a solicitor for the Capital Fund campaign, personally contacting Garden members each fall for a second gift to the Garden, in addition to a membership. Mr. Campbell had a deep and ongoing interest in the Arboretum, advocating programs and special efforts to focus more attention on the wonderful resources there.

When asked about his tenure as a Garden trustee, Mr. Campbell was quick to mention the extraordinary growth and development that had taken place at the Garden since his first visits here as a child. He recalled the decision of the Board of Trustees in 1971 to engage Dr. Raven as director of the Garden, a decision he felt resulted in the Garden's impressive progress.

A resident of St. Louis County until recently, Mr. Campbell retired in 1959 as chief engineer of International Shoe Company.

For over twenty years, Jules Campbell gave of himself to the Garden by serving on its Board. He will surely be missed by all with whom he worked and served.

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Kenneth A. Lamack Family
Mr. and Mrs. George McClure
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Mr. William Wurth
Mrs. Betty Schramm
Mr. Zvonko Ziglioli
Dr. James R. Criscione and Janelle Evans

THE MEMBERS' ENTRY COURT

The following bricks were donated to the Members' Entry Court at the William T. Kemper Center for Home Gardening between April 1, 1996, and May 31, 1996.

BRONZE SIGNATURE BRICKS

Mary K. Greensfelder
Mr. and Mrs. Harry Greensfelder III
Mr. and Mrs. Richard A. Haines
Mr. and Mrs. Bryan L. Schneider
Walter & Rosemarie Saar
Walter Saar

ENGRAVED CLAY BRICKS

Teel Richter Ackerman
Martin O'Brien Israel
Michael Adrio
Gateway to Gardening
Jack and Elizabeth Allgeyer
Elizabeth Allgeyer
Marjorie & Louis Amighetti
Louis D. and Marjorie E. Amighetti
Asterie Schultz Baker
Maia F. Schultz
Clarence C. Barksdale
Robert E. Kresko
Mark, Paul & Jeff Bigg
Sandy Bigg
Steve & Sandy Bigg
Sandy Bigg
Brian Bild / Shirley Bild
Brian and Shirley Bild
Adrienne & Erica Blume
Mr. and Mrs. H. Schnitzmeyer
Rick and Marsha Blunk
Richard Blunk
Alberta M. Bolinger
Alberta M. Bolinger
Duis D. Bolinger
Alberta M. Bolinger
Priscilla Schultz Bowker
Maia F. Schultz
Joyce Brandt
Mr. and Mrs. Saul Brodsky
Estelle Bell Brockhoff
Miss Dorothy A. Brockhoff
The C. H. Brockland Family
Anna Brockland
Walter Brockmann
Mildred Brockmann
Alicia Brown-Matthes
Alice H. Brown
Marian McCollum Brown
Marian Brown
Max Johann Bruhn
Dr. Johann N. Bruhn
Martina Buholzer
Mrs. Trudy Busch
John Bunten
John Bunten
Sue & Charles Bustion
Sue and Charles Bustion
Eleanor Caswell & Robert Shank, M.D.
Bruce Shank
Krista Myers Christopher
Mr. Scott Christopher
Anna Colton / Crystal Webb
Betsy O'Herin

Engraved Bricks *continued*

Mary David Constantino
Eula and Robert Murray
Lucille Corley
The Corley Children
The James L. Cox Family
Dr. and Mrs. James L. Cox
Estelle C. Doran
Ellen Armbruster
William F. Dowell
The Armbruster Family
Richard Eichelberger
Mr. and Mrs. Jack Bodine
Wilhelm & Betty Fiedler
Doris Weidmann
Olga Marie Foglia
Ellen Evers
Donna I. Ford & Carl Werntz
Donna Ford-Werntz
Gary & Laura Friedmeyer
Michelle Friedmeyer
Helen Gospodarczyk
Stanley Gospodarczyk
Agnes Cook Gudiswitz
Carl R. Gudiswitz
David Richard Heffner
Mr. and Mrs. Robert E. Heffner
Rose M. Henke
Eugenia C. Henke
Patricia Herscher
Eugene Herscher
David & Debbie Hicks
David L. Hicks
Roger & Oma Higgins
Dr. Nancy Higgins
Paul & Max Hoch
Dr. Peter Hoch
Charles Hoke & Katherine Hoke
Constace H. Laughlin
Charles E. & Lorraine House
Marilyn Zerman
Donald Hrdlicka
Paul J. Hrdlicka
Ralph & Shirley Humphries
Ralph Humphries
Lois Bolinger Huxel
Alberta M. Bolinger
Martin O'Brien Israel
Martin O'Brien Israel
Rodger Izzo
Kathy Izzo
Kaip & Peter Kama
Deborah L. Kama
Jan, John, Joe, Joanna & Gina
Mr. and Mrs. John L. Kardos
Rosemarie Kirchhoefer
Rosemarie Kirchhoefer
Carol Kirkpatrick
Kanani King
George W. Kriegshauser
Carol Kriegshauser
Sarah Libby Lafe
Joan and Paul Brockmann
E. Monty Lee / Elene C. Lee
Elene C. Lee
Paul & Kim Lilienkamp
Paul F. Lilienkamp
Lainey Lortz
Mrs. William C. Lortz
Peter E. Macy
Harlan Hoffman
John Cutler Marshall
Chris Marshall
Maryellen May
Margie Wolcott May
Martin & Hilda McCarthy
Judy McCarthy
Mary Jean Meiners
Cynthia Meiners
Elmer H. Mesnier
Mrs. Elmer H. Mesnier
Kelly Miller / Grandma Judy
Judy Miller
M.R. Mortensen / H.A. Oldham III
Harrod A. Oldham III
Russ & Dottye Moushey
Russell A. Moushey
The Nowack & Stokes Family
R.J. "Vince" Nowack
Joseph Papcun
Gregory Papcun
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Dr. and Mrs. Ronald H. Pflueger
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Kaye and Alan Quentin
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Mario & Emilia Ravetta
Johanna Ravetta
Larry J. Reed / John Green
Lee Tempel
Susan Marshall Reed
Mrs. Dwight Marshall
Laura Reese-Helbling
Loretta N. Oldani
Alice Rice
Alice Rice
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Elizabeth Robb
David Hart Robb
Elizabeth Robb
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Elizabeth Robb
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Maia F. Schultz
Maia Floris Schultz
Maia F. Schultz
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Roger F. Scott
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Nancy Gudiswitz
Nathan & Freeda Serkes
Freeda R. Serkes
Sylvia Israel Shapiro
Martin O'Brien Israel
Fabian L. Sickles
Mrs. Ruth M. Sickles
Catherine & Shannon Smith
Dr. G. Shannon Smith
Uncle Nick Softis
Mr. and Mrs. Virgil P. Tompras
Software To Go
Joe Balsarotti
George & Dorothy Solovic
George J. Solovic
George & Susan Solovic
George J. Solovic
Donald Soutiea & Wayne Drees
Wayne A. Drees
Spasnick Plumbing, Inc.
Spasnick Plumbing, Inc.
Stark Alumni FTC
Roberta Dolbeare
Terry Freed
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Jim Law
Carmen Marshall
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Joe Schillinger
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Pamela Reichman
Frank & Loraine Stroble
Gerald Hurt
Vivian Sutherland
Howard Sutherland
Albert & Jayne Swantner
Jayne Swantner
Maryjo Wille Thornburgh
George W. Thornburgh
Magdaline Tompras
Mr. and Mrs. Virgil Tompras
Evelyn Trampe
Stephen Trampe
Edward & Marie Unnerstall
Carol M. Fujita
Mr. and Mrs. Richard G. Williams
Annie & August P. Wagner
Dorothy Horstman
Ann Whitney and Lee J. Whitney
Ann Whitney
O. Sage Wightman IV
Mr. and Mrs. O. Sage Wightman III
Ray & Lucille Wilson
George J. Solovic
Jeanne D. Withum
Mrs. Ferrell Tunze
Mas Yamada
Marjorie Yamada
Maria Liana Gentry Zardini
Dr. Elsa Zardini
Raul Alberto Zardini & Family
Dr. Elsa Zardini

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Japanese *Festival*

22nd Annual Festival

Labor Day Weekend 1996

Saturday, August 31 — Monday, September 2

10 a.m. to 10 p.m., Saturday and Sunday • 10 a.m. to 5 p.m. Monday
Festival Admission: $6 adults; $4.50 seniors aged 65 and older; $2 to Garden members; children aged 12 and under are free. Some performances require additional tickets.

Featuring San Jose Taiko Drummers

Pine —
Matsu

- The Candyman
- Tea Ceremonies
- Martial Arts
- Kabuki
- Karaoke Contests
- Bon Odori Festival Dancing
- Ikebana and Bonsai Displays
- Japanese Marketplace and Food Booths
- Candlelight Walks in Seiwa-en
- Guided Walking Tours of the Japanese Garden
- Print Works Calligraphy
- Raku Demonstration
- Juggler
- Music
- Cooking Demonstrations
- Kimono Fashion Show
- Processions
- & More!

Additional Walk-in Entrance will be open at the Shoenberg Administration Building, 2345 Tower Grove, beginning Saturday at noon.

For Festival Information call GardenLine 24 hours a day: 577-9400, or 1-800-642-8842.

The 22nd Annual Japanese Festival is sponsored by the Missouri Botanical Garden and the Japanese Activities Committee, a coalition of organizations that includes the Japanese American Citizens League, Japan America Society of St. Louis, Japanese Chamber of Commerce & Industry of St. Louis, St. Louis Japanese Language School for Children, St. Louis-SUWA Sister City Committee, St. Louis Japan Society, Seinen Committee, The Women's Association of the Japan America Society, and Office of the Consulate General of Japan in Kansas City.

A SPECIAL EVENT

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BULLETIN

Missouri
Botanical
Garden

SEPTEMBER /
OCTOBER
1996

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VOLUME LXXXIV
NUMBER FIVE

Comment

Missouri Botanical Garden Mission: “To Discover and Share Knowledge About Plants and their Environment, in Order to Preserve and Enrich Life.”

As this issue of the *Bulletin* went to press, we were delighted to learn that the President has signed the 1997 Agriculture Appropriations Bill, which includes $3.1 million to continue the Department of Agriculture's support of our new research center (please see page 3, opposite). This is a tremendous step forward for our Partnership Campaign, and I would like to extend my warmest appreciation to everyone who worked so hard for the past three years to secure and complete this federal funding.

The Partnership Campaign continues to achieve new milestones, with the dedication of the Piper Observatory and groundbreaking for the new Kresko Family Victorian Garden in the Historic District. We are enormously grateful to the Pipers and the Kreskos for their generosity in making these wonderful new features possible. We can share our thanks with everyone who has donated a brick to the Members' Entry Court at the Kemper Center, when the Garden hosts a delightful celebration on September 19; please see page 5 for details on donating your brick in time for the party.

This is the fifth anniversary of the annual “Best of Missouri” Market, coming up in October. This enormously popular event could not take place without the hard work of our Members' Board under the leadership of Nora Stern and Ellen Dubinsky, and I know all of our members join me in thanking them for their dedication. Be sure to join in the fun!

— Peter H. Raven, director

INFORMATION

24-Hour Information on Events:

GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions.

Or call 1-800-642-8842 toll free.

24-Hour Information on Gardening Topics:

HortLine – (314) 776-5522

You will need a touch tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:

(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch tone phone. Listings are updated bi-weekly.

Horticultural Answer Service: (314) 577-5143

Monday through Friday, 9:00 a.m. to noon.

Master Composter Hotline: (314) 577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:

http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m., every day except Christmas; 9 a.m. to 8 p.m., Memorial Day through Labor Day. Grounds open 7 a.m., Wednesdays and Saturdays.

Kemper Center for Home Gardening:

10 a.m. to 4 p.m. daily; Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop:

9 a.m. to 5 p.m. daily; 9 a.m. to 6:30 p.m. daily, Memorial Day through Labor Day. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:

Buffet service during hours the grounds are open.

Tower Grove House:

10 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 30 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. The Visitor Center is open 8 a.m. to 4:30 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. Admission is free for Garden members. For information call (314) 451-3512.

Moving? Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this *Bulletin* and mail to:

Bulletin, Missouri Botanical Garden, P.O. Box 299,
St. Louis, MO 63166-0299.

Your Name:

Old Address:

Street

City

State Zip

New Address:

Date effective:

Street

City

State Zip

On the Cover

A stone Oribe lantern illuminates a water basin on Teahouse island.

– Photo by Jack Jennings

Editor

Susan Woolevhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions, announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members. For information, please call (314) 577-5118

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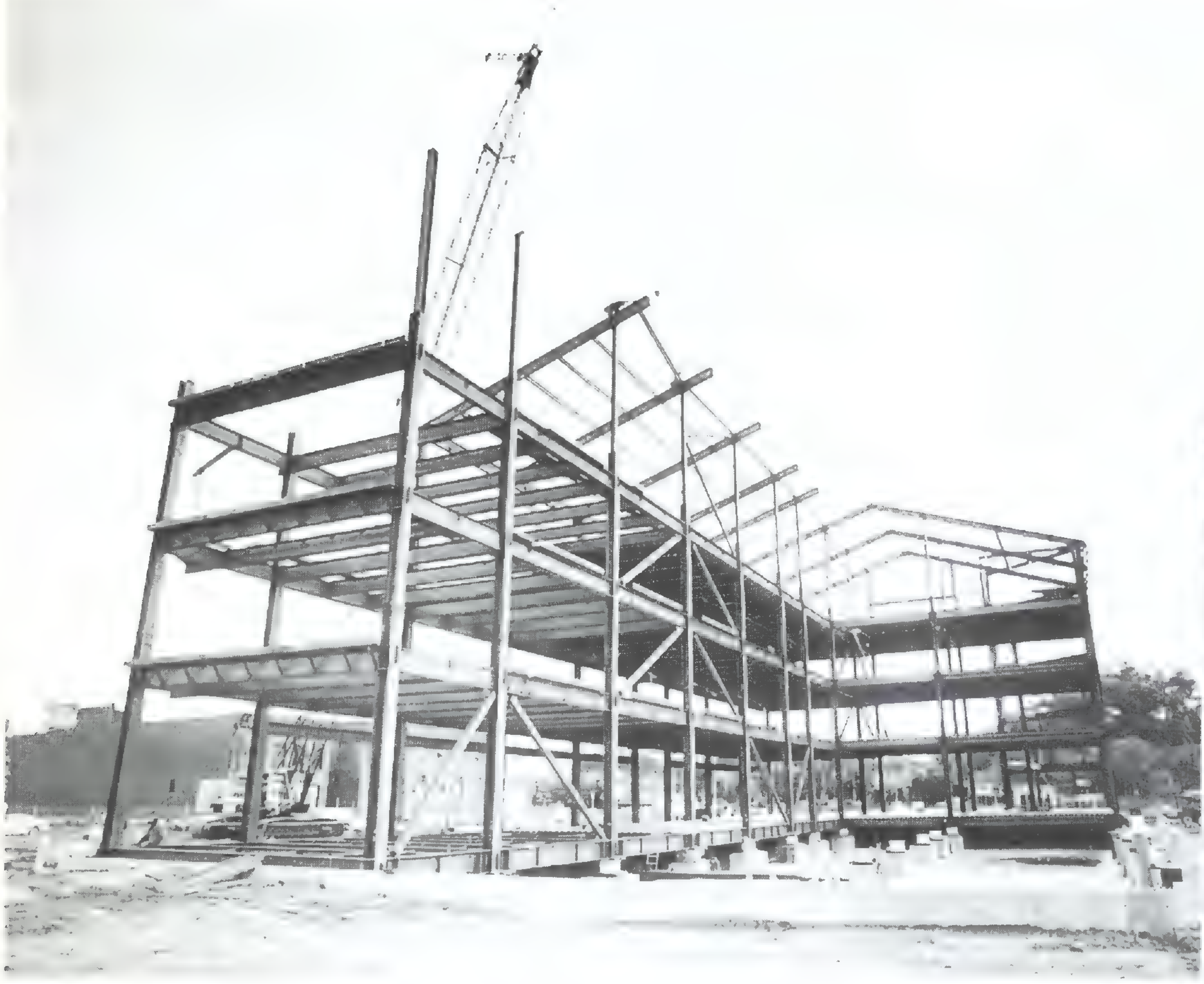


Structural steel is beginning to rise at the corner of Shaw and Vandeventer, where the new research center is under construction. Base isolator units installed on each pier of the foundation, visible at left, protect the structure from earthquakes.

PHOTOGRAPHS BY CLIFF WILLIS

U. S. Department of Agriculture Supports Research Center

THE UNITED STATES CONGRESS passed the 1997 Agriculture Appropriations Bill in July 1996, including $3.1 million for the Garden's new research center. The bill was signed by President Clinton on August 6, 1996.

In 1994 the U.S. Department of Agriculture, following an evaluation by its Cooperative State Research, Education, and Extension Service, recommended funding half the cost of the building in recognition of its importance as a highly necessary facility that will have a significant, positive impact on U.S. agriculture. Awards totalling $4.6 million were made in fiscal 1995 and 1996. The 1997 award brings total federal funding for the Garden's research center to $7.9 million. The total cost of the building is budgeted at $19.4 million.

Peter H. Raven said, "We received outstanding bipartisan support from Senator Christopher S. Bond, Congressman Richard A. Gephardt, Democratic leader of the House of Representatives, Congressman Richard J. Durbin of Illinois, Congressman William L. Clay of St. Louis, and the entire Missouri delegation. We also are extremely grateful to our longtime friends at Monsanto Company, whose recent $2 million gift to name the new library is the largest private donation for the research center to date, and especially to Chet Dickerson of the Monsanto/Washington group for invaluable assistance. Our sincere thanks also go to all of the local, national, and international corporations and institutions that wrote to Congress on our behalf."

The new research center will house the Garden's distinguished research program, recognized internationally for addressing pressing environmental issues and for its outstanding graduate training program, operated in cooperation with local universities. The building also will house portions of the Garden's herbarium, the second largest in the U.S., and its library, recognized as one of the world's finest botanical collections. Together these facilities provide basic scientific information crucial for plant genetics, crop improvement, weed control, and the discovery of new foods, fibers, and medicines.

"The funding from the federal government, plus the outstanding support we have received from private sources, has been a tremendous boost toward our goal for the research center," said Patricia Arnold, interim director of development. "Through the Partnership Campaign, we continue to seek gifts to help us complete the funding for the building."

SMALL GIFTS MAKE A BIG DIFFERENCE

Be Part of the Partnership Campaign!

Whether your donation is modest or magnificent, the Partnership Campaign welcomes your support. Many small gifts add up to big donations, so be a part of the future today! For more information about how your gift can help support the new Research Center, please call the Development Office: (314) 577-9495.

Birch Mahaffey Carpenter Butterfly Pavilion

ON A GENTLE RISE at the south end of the Kemper Center stands a lovely pavilion, a gift from Dr. and Mrs. Walter (D.J.) Moore and the Carpenter family in memory of Mrs. Moore's son, Birch Mahaffey Carpenter, who died at age 34 on August 18, 1992. The Carpenter family includes his brother and sisters, Laura Carpenter Balding, Clarkson (Joe) Carpenter III, Dorothy M. Carpenter, and Sophie E. Carpenter.

The pavilion overlooks the Butterfly Meadow and commands a panoramic view of all the Kemper Center gardens. The structure is open on three sides, creating a delightful place to sit in the shade and enjoy cool breezes off the lake in the Japanese garden just to the south. The pavilion is reminiscent of Japanese-style garden shelters, visually uniting the Kemper Center with *Seiwa-en*.

On three sides of the pavilion are panels of white stucco providing privacy and shade. The rest of the enclosure is open to the air and screened with cedar laths. Simple wooden armchairs on a stone floor provide a cool restful place to enjoy the views to the north, south, and east.

The copper roof of the Butterfly Pavilion is supported by columns made from natural trunks of Eastern red cedar, with a beautiful pattern of cedar laths on the ceiling. The four pediments of the roof are open to the breezes and ornamented with exquisite panels of bronze filigree in a charming pattern of butterflies, created by sculptor Robert Lee Walker.

Mrs. Moore and her family chose to name the Butterfly Pavilion for her late son because of his love of the out-of-doors and his dedication to conservation. "We were interested in the Center for Home Gardening from the very beginning," said Mrs. Moore. "I think Birch would have loved the peace and serenity of the Butterfly Pavilion, where you can sit and be close to nature," she said.

Maritz Apple Allée

MR. AND MRS. WILLIAM E. MARITZ and Maritz, Inc., have generously donated the Maritz Apple Allée at the William T. Kemper Center for Home Gardening. Because the Maritz name is of French descent, the Apple Allée was very appealing to William Maritz. "My French heritage, coupled with the beauty of the blossoming apple trees and my personal love of apples, led to my choice of this garden to represent my contribution to the Kemper Center," he said.

The Maritz Apple Allée is a beautiful new feature that combines a double row of Golden Delicious apple trees with an underplanting of flowers; when the trees mature, they will arch over the path to create an elegant and shady walkway. As visitors walk from the tram path toward the fountain of five dancing geese, they will pass drifts of spring, summer, and fall flowering bulbs mingled with periwinkle ground cover to enliven the landscape beneath the fruit trees.

Mr. Maritz has served as a member of the Garden's Board of Trustees since 1980. He currently serves as an emeritus trustee and as a member of the Partnership Campaign Steering Committee. In 1982, the Maritz family generously provided the atrium in the education wing of the Ridgway Center as a tribute to Mr. Maritz's parents.

Patricia Arnold, interim director of development, said, "The personal and corporate support that Mr. Maritz and the Maritz family have extended to the Garden is exceptional. They have helped generate some memorable achievements in the Garden's history, and we are very grateful for their generous contributions."

Garden Meets NEH Challenge Grant

The Garden has raised $1,193,604 to meet the terms of a $294,000 challenge grant from the National Endowment for the Humanities. The NEH made the challenge in December, 1994, to help with construction costs for the library in the new research center. The matching funds include support from Monsanto Company, which made the naming gift for the new library.

"We are most grateful to the NEH for their support, and to all the donors who helped us to meet this challenge," said Constance Wolf, the Garden's librarian. "Support from the NEH recognizes the significance of the Garden's outstanding library collection."

"NEH challenge grants represent one of the best examples of federal and private partnership," said NEH chairman Sheldon Hackney. "By spurring major contributions from the private sector, the impact of federal dollars is increased exponentially. Without this kind of partnership, countless educational and cultural institutions would not be able to survive today." This is the second NEH grant awarded to the Garden. The first award, in 1985, provided $85,000 for a renovation of the Lehmann Building, where the library is located until the new research center is complete.

PHOTOGRAPHS BY CLIFF WILLIS

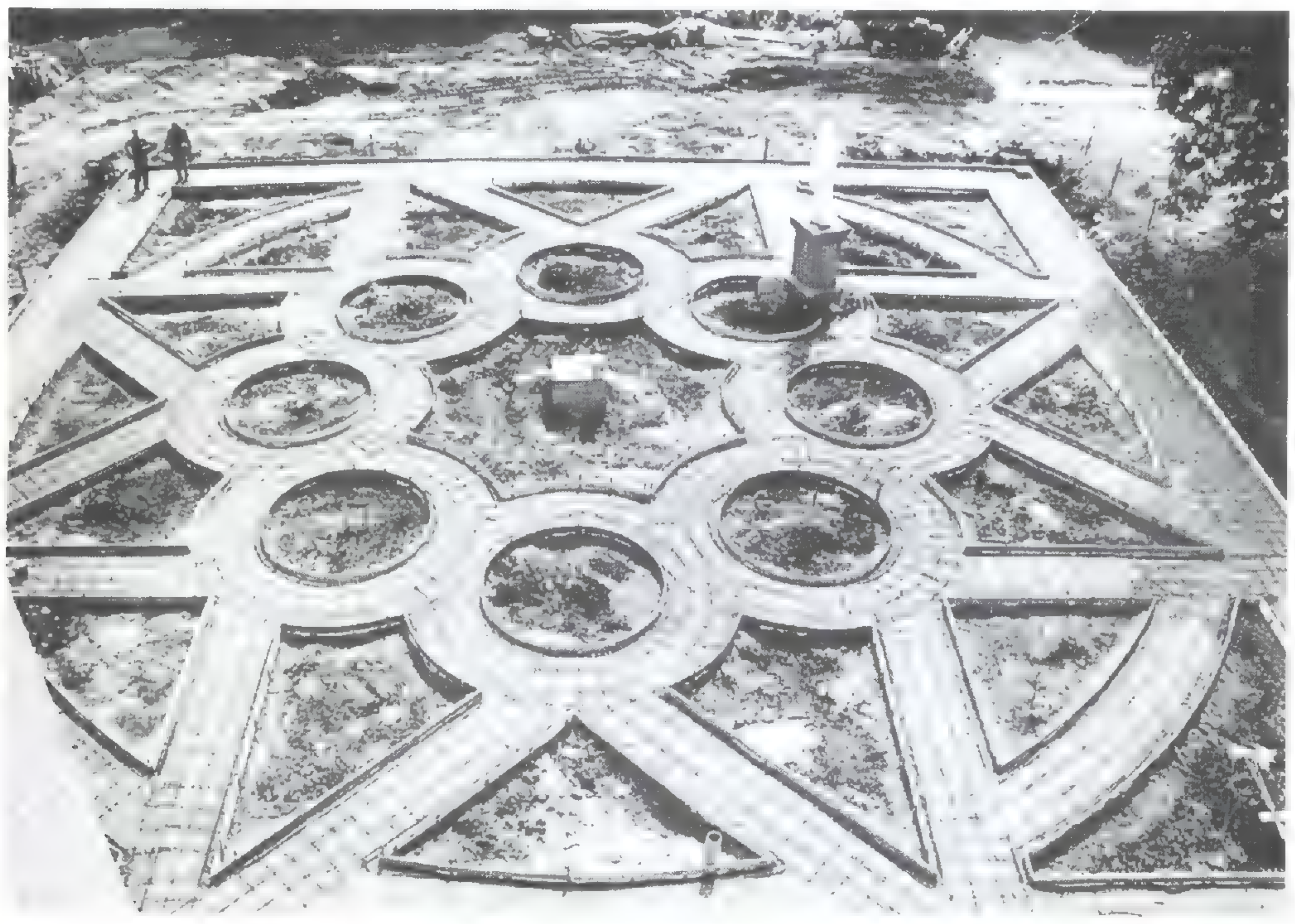
Piper Observatory Is Dedicated

The family of Mr. and Mrs. Vernon W. Piper gathered on July 19, 1996, to dedicate the Piper Obeservatory in memory of Mr. Piper's parents. The tower is a replica of one built by Henry Shaw in the 19th century in Tower Grove Park.

Above, top: Marion Piper on the observation deck, overlooking the maze. The Jennie Latzer Kaeser Memorial Maze was a gift from the Pipers in memory of Mrs. Piper's mother. Above, Vernon and Marion Piper outside the observatory with their children and grandchildren.

Kresko Family Victorian Garden

Construction is well underway on the new Victorian Garden, a gift from Mr. and Mrs. Robert E. Kresko and their children. The marble *Juno* sculpture will be placed in the center of the parterre, which will be planted with colorful blooms next spring.



September 19, 1996

A Party for Donors of Bricks in the Members' Entry Court

Join us for a delightful evening reception exclusively for donors of bricks in the Members' Entry Court at the William T. Kemper Center for Home Gardening. All brick donations support the Partnership Campaign. Bricks may be inscribed with the names of yourself or your loved ones. Below, some scenes from the donors' dedication party last year.

PHOTOGRAPHS BY CLIFF WILLIS

- **Engraved bricks — $300 each.**
- **Bronze signature bricks — $1,000 each.**
- **Up to 28 characters may be engraved on each brick — names only, please. We cannot accommodate dates or sentiments.**
- **Payment may be made by cash, check, or MasterCard/Visa.**
- **Order forms are available at the Membership Services Desk in the Ridgway Center, at the Kemper Center, or you may call the Development Office at (314) 577-9495.**
- **Bricks ordered after September 9, 1996, cannot be installed in time for the party September 19, but donors will still be welcome to attend the festivities.**

Purchase Your Brick Today!

John Burroughs School Interns at LREC

Summer Jobs with the Eco-Restoration Corps

LAST SUMMER a team of ten students from John Burroughs School spent four weeks during June and July working at the Litzsinger Road Ecology Center. The work was not easy; the students picked up litter along Deer Creek, cleared brush, built trails, worked on restoring wildlife habitats, and assisted younger students in summer science classes at the Center.

As part of the job, the tenth graders learned about environmental science first hand. Working with Garden education staff and with Margaret Bahe, a biology teacher at John Burroughs School, the students developed skills in horticulture, plant identification, wildlife habitat management, arboriculture, and native plant propagation. They were required to complete reading assignments, keep journals, and participate in discussions.

The program included field trips to the Busch Memorial Wildlife Management Area, the EarthWays Home, the Center for Plant Conservation, the Wild Canid Survival and Research Center, the Saint Louis Zoo, recycling and waste treatment facilities, and other sites of ecological importance.

"This was a great experience for all of us," said Celeste Prussia, manager of the Litzsinger Road Ecology Center. "The Burroughs students did an outstanding job and were full of curiosity and questions about environmental issues. They really worked as a team dedicated to making a difference. We look forward to doing more programs like this in the future."

The Ecological Restoration Corps was made possible by funding from the William T. Kemper Foundation, Commerce Bank, Trustee.

Above: Burroughs students at work on the prairie restoration area at LREC.

Litzsinger Road Ecology Center

The LREC is a nature preserve in St. Louis County operated as an educational facility by the Garden's Education Division. The Center includes woodland, prairie, and streambed habitats and a log cabin classroom facility where programs in environmental science are offered throughout the year. Programs this summer included:

Creature Feature — Observing animals to see how they live.

What's Buzzing Around — Tracking insects in the forest and prairie.

Where the Wild Things Are — Birds, insects, and other organisms in natural habitats.

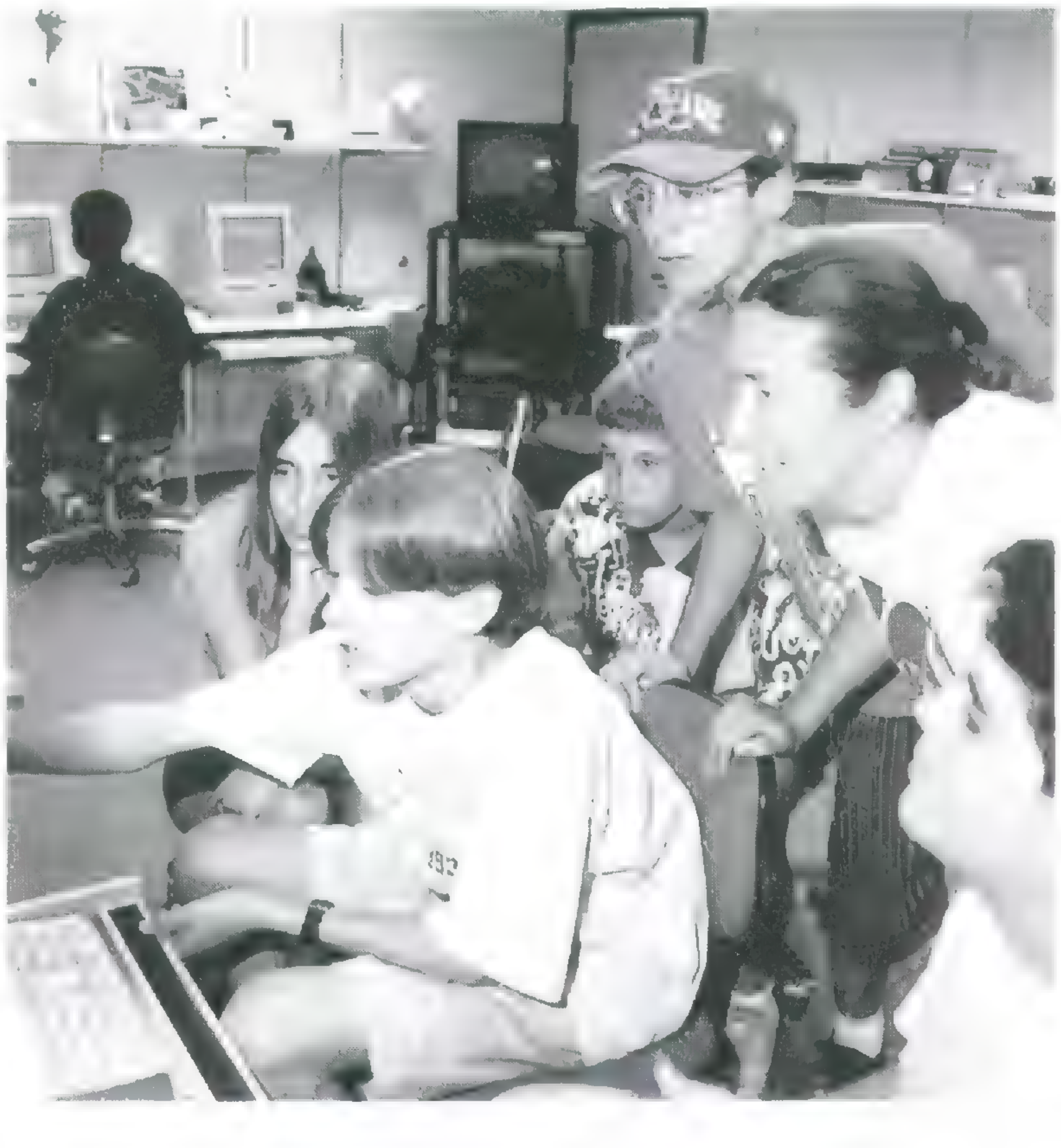
EarthArt — How animals and plants use color and design for attraction and protection in the wild.

Ecology through Inquiry — Teachers learn how to conduct experiments while exloring the ecology at schools and other locations.

Ecology for Teachers — Explores basic ecological principals through hands-on activities that can be used with students.

Field Ecology — A new two-day program introduced teachers to field study opportunities at the LREC and helped them develop grant proposals to bring their classes.

Summer Ecology Exploration — Teachers trained through the Garden's Natural Science Institute for Elementary Teachers worked with students in two-week programs of explorations and investigations at LREC, the Garden, and Shaw Arboretum.



Andersen Computer Lab

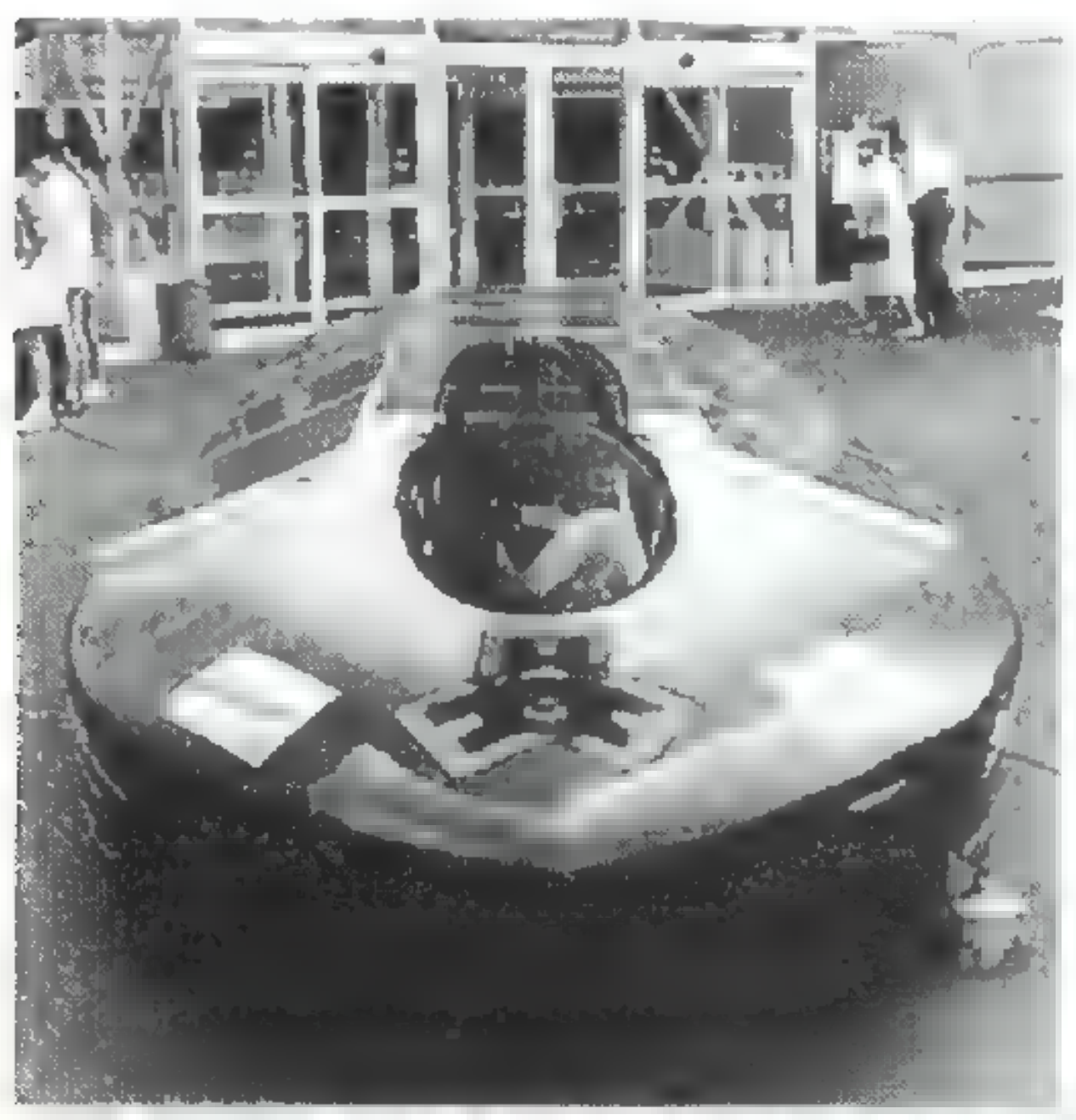
This summer the Andersen Computer Lab at the E. Desmond and Mary Ann Lee Education Center hosted its first class. Students used the powerful computer equipment to experiment with multimedia and the Internet. Here, Celeste Prussia works with students. The new computer facility was made possible by a 1995 gift from the partners of Arthur Andersen LLP and Andersen Consulting LLP.

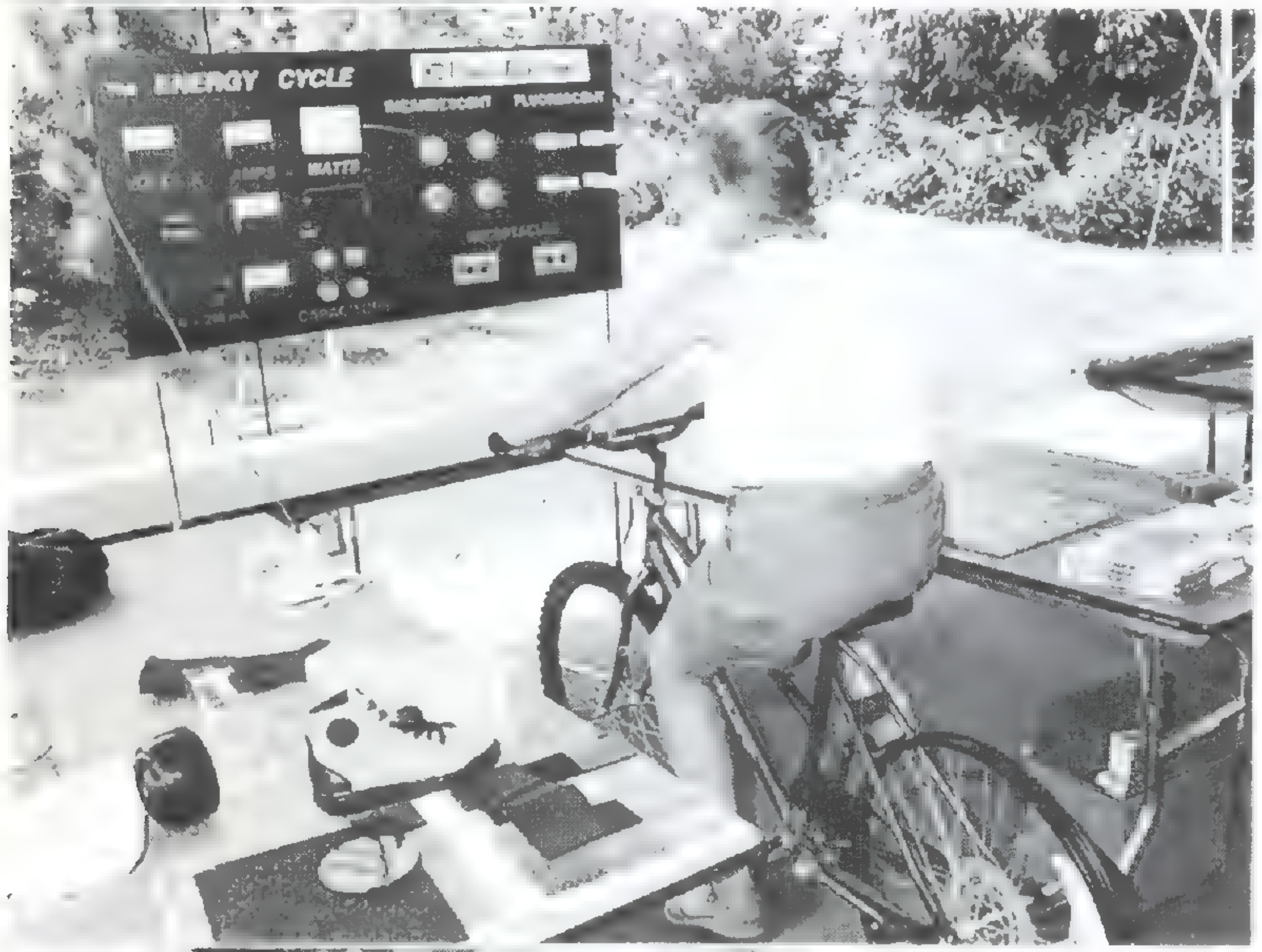
YOU & THE ENVIRONMENT

"EarthFriends Day:" Planet-Friendly Living

SUNDAY, JUNE 23, the Garden welcomed visitors to a fun-filled celebration packed with tips on how to protect and improve the environment. People of all ages discovered that small changes can be fun and have a big impact.

Tasty rain forest treats, a one-ton block of crushed aluminum, a solar powered car, and the latest in bicycles were on display. Kids and adults had fun with the Recycle Roundup, making environmentally friendly cleaning products and personal grooming items, composting demonstrations, a solar powered lawn mower, papermaking, and storytelling. Gateway to Gardening demonstrated city gardening; Bi-State and Ride Finders offered safer, easier, cleaner ways to get around; the Sierra Club, the Department of Natural Resources, the American Lung Association, and many other organizations were on hand with information.





Top: The solar-powered car was on display outside Ridgway Center.

Center: Union Electric's "Energy Cycle" measured the energy produced by pedaling a bike.

Left: "EarthFriends" learned to make environmentally friendly cleaning products.

State Conference on Environmental Education
October 4-6, 1996

Teachers, youth group leaders, naturalists, and educators are encouraged to attend Missouri's first state-wide conference on environmental education, organized by the Department of Conservation. The conference is the first step in an effort to create a network of resources for environmental educators in Missouri. Several Garden staff members will present sessions. The conference will be held at The Lodge of the Four Seasons at Lake of the Ozarks, Missouri. For more information and registration, please call or write: Ginny Wallace, Office of Environmental Education, Missouri Department of Conservation, P.O. Box 180, Jefferson City, Missouri 65102, (573) 751-4115, ext. 294.

1997 Garden Travel Opportunities

Natural History Adventures

- **Thailand: A Southeast Asian Paradise,** February 8 - 23, 1997 $3,093 from Los Angeles
- **Venezuela: Land of the Lost World,** February 27 - March 8, 1997 $3,198 from Miami
- **Coastal Spain and the Canary Islands,** April 11 - 28, 1997 Call for price.
- **The Nature Place: Colorado Rockies,** July 5 - 11, $825/Adult, $550/Children
- **Galapagos: Darwin's Enchanted Isles,** August 6 - 16, $3,398 from Miami
- **Kenya: A Grand Safari,** October 19 - October 31, $4,385 from St. Louis

Missouri Botanical Garden

Call (314) 577-9506 for additional information

PITZMAN NATURE STUDY PROGRAM

39 Years Young

FOR 39 YEARS THE PITZMAN FUND has supported education for thousands of children at the Garden in natural history and nature study. Since the death last year of Pauline Pitzman Eades, her daughter, Caroline Early, sustains the family's commitment to the Garden through the Pitzman Fund.

The Pitzman Nature Study Program at the Garden encourages a child's natural curiosity by introducing ideas about science, nature, and ecology to children ages four to six, accompanied by an adult. The Pitzman program has been so popular over the years that many former students are now sending their own children. This past summer over 260 children and parents participated in Pitzman classes.

Left: A new Pitzman class, "Amazing Fountains," was a cool choice last summer.

COVER CROPPING

SOIL IMPROVEMENT should be an ongoing concern for all gardeners. One excellent soil-building technique that is often overlooked is the practice of growing cover crops as a source of organic matter to enrich the soil.

Plants grown as cover crops are sometimes referred to as "green manures." The terms are virtually interchangeable. Green manures become cover crops when they are left in place to protect the topsoil from erosion by the elements. Once they are tilled in, the plants increase the organic matter in the soil.

Organic matter is frequently referred to as the "glue" that holds soil particles together. It also promotes development of soil aggregates, improving drainage, soil tilth, and soil structure. Organic matter increases the water-holding capacity of sandy and sandy loam soils; it also improves the drainage and aeration of heavy clay soils.

There are many traditional cover crops. They are usually divided into two categories: legumes, including alfalfa, beans, sweet clover, white clover, and hairy vetch, and non-legumes, including buckwheat, oats, annual ryegrass, winter rye (also called rye grain), rapeseed (also called canola), sudan grass, and winter wheat.

Legumes

Legumes have the unique ability to form symbiotic relationships with *Rhizobium* bacteria, which enter the legumes' roots and produce nodules that "fix," or retain, nitrogen from the air. This "free" fertilizer is available to crops planted after the legume has been incorporated into the ground.

As you scan the bean section of most seed catalogs, you will notice references to bacterial inoculants for specific crops. There are a dozen or more species of these rhizobia, but no single one that associates with all legumes. For this reason, gardeners are always reminded to match the right inoculant to the legume crop they are growing. There are always some of the right bacteria in healthy soil, but their numbers may be too low to be of benefit.

The usefulness of the bacteria should not be underestimated. Given identical growing conditions, inoculated seed has been shown to outperform by 15 to 25 percent the same seed that was not inoculated. This applies to both the top growth as well as the underground portions of the plants. A good rule of thumb is, if you haven't grown the legume in the same spot during the past four years, inoculate your seeds.

Autumn Crops

Cover crops may also be categorized by the seasons when they are grown. Annual rye and oats are best planted in August and September. They produce quick growth and remain alive only until the ground freezes. Their roots hold the soil in place over the winter, but by spring they have begun to decay and can be easily turned under.

Winter rye and winter wheat can be seeded from August through October. Growth will be rapid at first, then slow but steady, stopping only during severe cold weather and resuming again in spring. The wheat should be incorporated before it turns into fields of waving grain, when the plants become quite tough.

Hairy vetch is best planted in September to allow it to become established before winter. It grows slowly until the first hard freeze, and resumes with greater vigor upon the arrival of spring. Vetch is great in combination with either winter rye or winter wheat. Hairy vetch fixes most of its nitrogen late in the spring, so it should not be planted where early tilling is necessary. Hairy vetch makes attractive, violet pea-like flowers in mid- to late spring, but it produces vines and rambles over anything in its path. Rye, wheat, and vetch can be mowed in spring if necessary to control their height. They are also best mowed just before tilling.

Spring Crops

Alfalfa, sweet clover, and white clover are best sown in spring and allowed to grow for at least a year to produce large root growth and nitrogen fixation. Alfalfa and sweet clover can also be sown in early fall. There is an annual form of sweet clover called 'Hubam,' and an annual form of alfalfa called 'Nitro,' both of which can be sown in spring and tilled under in fall.

Summer Crops

Snap beans, which are typically grown for food, can also be grown as green manures. They are easy to obtain, relatively cheap, and grow quickly. Several crops can be sown successively from late spring through mid-summer. Soybeans also make an excellent summer green manure and are perfectly adapted to our climate.

Both buckwheat and sudan grass can be sown in late spring and turned under in summer or fall. Sudan grass is closely related to sorghum and grows rapidly during warm weather, often attaining a height of eight feet or more. It should be tilled under while still succulent and before it produces a seedhead.

Buckwheat is one of the easiest cover crops to manage by hand tilling. It can be planted when the soils warm in May and grows only during the summer months. However, it rapidly grows so thick that it quickly smothers summer weeds. It is ready to be tilled about six weeks after sowing, or just as it begins to bloom. A second sowing can be planted immediately after tilling, and in some seasons a third crop is also possible.

Rapeseed is a non-heading member of the cabbage family. It can be sown in spring or early summer and grows very rapidly, providing good weed suppression. It blooms prolifically with yellow mustard-like flowers and is actually quite ornamental. It should be turned under as the flowers fade. Like buckwheat, it is easily tilled by hand and decomposes very rapidly.

Planting several cover crops in succession can rid the garden of perennial weeds by shading them out. For example, buckwheat followed by buckwheat, followed by oats or annual rye, or a winter rye/hairy vetch combination, can work wonders. In addition, certain cover crops, notably oats, rye, and wheat, are allelopathic, which means they contain substances that can suppress the growth of other plants. This provides a measure of weed control until you turn under these green manures and plant your garden. Once turned in, the allelopathic compounds will decompose before harming your crops.

Where To Plant

Traditionally cover cropping has been utilized mostly in vegetable gardens. I see no reason why, with careful planning, these techniques cannot also be used for soil improvement in annual beds on a regular basis. Intensive cover cropping for a season or two before planting annual gardens will pay off in the long term.

New Lawns

It's the day you're going to close on your dream home, and you can't wait to see that verdant lawn the contractor promised. Except that your topsoil was shipped to who knows where, months ago. It rained the day before the work crew came to install the final grade, and those bulldozers have squeezed every last vestige of air from the thick, gluey clay subsoil; it will resemble adobe bricks next week when things dry out. Sound familiar? Would you consider cover cropping for a season or two to create a soil worthy of the lawn or garden of your dreams?

How To Plant

To plant a cover crop, rake the garden area smooth and remove any debris or large stones. Broadcast the seed just as you would if planting lawn grasses. Lightly rake again so the seed is covered, and water in the cover crop with your hose set to a fine mist. If there is no rain, water regularly until the seeds sprout and start to grow. To insure a uniform stand, don't let the seeds dry out once you start.

Weeds can be pulled if they appear first. Otherwise, a thick stand of your cover crop is the best defense against weeds. Keep in mind that for soil improvement purposes, green weeds can also be green manures. Think of the time-honored farm technique of allowing land to lie fallow for a season or two between crops. It's mostly "weeds" that grow in those fields, principally plants perfectly adapted to mining and extracting the nutrients they need to survive at that particular site.

Tilling

Cover crops are not without disadvantages. They are easiest to manage if you have access to a rotary tiller, preferably one with the tines mounted in the rear. For those gardeners who manually turn the soil with hand tools, tilling under a cover crop is either a great aerobic workout, or a daunting task. In fact, turning under a long-term green manure can be not only labor intensive, but time consuming as well.

Inevitably many roots and some tops will survive the first turning. This will necessitate some additional turnings stretched over several weeks time before the crop is completely incorporated. To make the job somewhat easier, mow the crop first, then spread a layer of compost or manure over the stubble and water it well. Wait several days before turning the soil.

Cover crops are certainly not for every situation. Virtually all require full sun to do well, so they are not for shady areas. Rotary tillers can inflict massive injury on the root zone of trees and nearby shrubs, so cover cropping should be limited to open areas away from established trees.

Cover crops generally are best plowed under before they are mature. For most crops this is just as they begin to bloom. At this stage, the plants usually contain the largest amount of organic content as well as nitrogen and other nutrients, plus an adequate amount of moisture for rapid decay.

After tilling in the cover crop, wait about two weeks or longer before planting the bed, as soil microbes temporarily tie up the available nitrogen while they digest the remains. The site will be ready for planting once the stems and leaves of the cover crop are no longer recognizable.

— Chip Tynan,
MBG Horticultural
Answer Service

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9190
American Orchid Society (Mid-America Regional Judging Committee)	*David Brown*	727-2385
Belleville Area Rose Society	*Dennis Nelson*	618-233-4609
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Tom McClarren*	352-2544
Greater St. Louis Iris Society	*Jim Loveland*	349-4977
Henry Shaw Cactus Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilberg*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Barb Ottolini*	532-4644
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
St. Louis Water Garden Society	*Bonnie Alford*	962-2263
West County Daylily Club	*Roy Bohrer*	240-8780

"Why are there paper bags on the corn?"

Visitors to the Kemper Center have asked this and many other questions about the plantings in the Justin A. and Rose J. Naumann Experimental Garden this summer.

The peculiar-looking bags on the corn are part of an ongoing experiment to produce a bi-colored red and green cob of corn that can be used for display at holiday time. Pollen from a plant that produces red kernels was transferred by hand to the silks of a plant known to produce green kernels. The ears of corn are enclosed in bags to prevent contamination by wind-borne grains of foreign pollen. The experiment will take four growing seasons to complete.

The corn project is just one of the many fascinating displays in the Experimental Garden, where we present new plants, ideas, and techniques for backyard gardeners. Here you will learn to improve soils and increase productivity, use the least toxic methods of pest control, and evaluate new plant selections first hand. The Experimental Garden also includes the Monsanto garden, featuring genetically engineered plants (see the July/August 1996 issue of the *Bulletin*).

All-America Selections

The All-America Selections display has been a popular exhibit. All-America Selections (AAS) is an organization founded to evaluate and promote new cultivars of flowers and vegetables.

Each year the most promising new varieties are grown side-by-side in field trials conducted at test sites across North America. The AAS judges evaluate and score each entry. Only the most distinctive entries are considered for awards each year. The AAS display in the Experimental Garden contains all of the winners in the bedding plant and flower categories from 1989 to the present.

The display includes the 1996 winners: *Petunia* 'Fantasy Pink Moon', *Petunia* 'Heavenly Lavender', and *Salvia forenacea* 'Strata'. *Petunia* F1 hybrid 'Fantasy Pink Moon' is a "milliflora" petunia. Millifloras are an entirely new class of petunia; the term means "many small blooms," which is an apt description of this compact, free flowering beauty. *Petunia* F1 hybrid 'Heavenly Lavender' is a modern version of the old fashioned double petunia, and *Salvia* 'Strata' is bi-colored, having both blue and white blooms on each flower stalk.

Also included among the dozens of outstanding plants in this display is another "first of a kind," *Petunia* 'Purple Wave', the first true ground cover petunia. Introduced in 1995, this low-growing, fast-spreading trailer is destined to become a classic.

Low Maintenance Perennials

The display of low maintenance perennials features select plants hardy in the St. Louis area. For a perennial to be considered low maintenance, it must: 1) not require staking under normal conditions; 2) be winter hardy; 3)not be susceptible to major diseases or insect infestations; 4) should not require dividing for at least three years; and 5) must display attractive foliage during the entire growing season. A perennial missing just one of these criteria is designated as medium care. Any plant failing two or more of the criteria is earmarked as high maintenance.

This young garden will take two or three seasons to become fully established. In future years, more space will be allotted to testing perennials according to the AAS concept of side-by-side trials using similar cultivars.

Dwarf Fruit Trees

The dwarf fruit tree display acquaints home gardeners with small-statured tree fruits that are perfectly sized for today's smaller landscapes. Dwarf trees usually grow only five to ten feet tall, compared to 30 feet or more for standard varieties.

Most modern fruit trees are a combination of two varieties grafted together. The rootstock comes from one tree, and the upper part, or scion, comes from another variety. Occasionally a short section of trunk, called the interstem, may be taken from a third tree and grafted between the rootstock and the scion.

It will be several years before our trees reach bearing age, but not nearly as long as it may take standard fruit trees to mature. Dwarf trees begin yielding within a couple of years, often producing well by the time they are three to four years of age. Standard trees may take five to ten years or longer to begin bearing.

This display also provides valuable lessons in fruit tree pollination. In nature, cross-pollination is the general rule, as it ensures genetic variability and prevents inbreeding. Some cultivated fruits, however, can pollinate themselves. This is true of most peaches and nectarines, as well as many apricots. European plums are also self-fertile, but Japanese plums require another Japanese plum to bear fruit. Pears, apples, and sweet cherries all need another pollinator to bear well.

Peppers

The growing popularity of Mexican and Southeast Asian cooking has created a burgeoning interest in the cultivation of hot peppers. The Experi-

PHOTOGRAPHS BY CLIFF WILLIS

Creating red and green corn cobs is the dream of Reverend Pete Bruss, a local gardener with a passion for unusual ornamental corn.

The Naumann Experimental Garden, looking east. The dramatic sunflower display is at left.

mental Garden features ten popular varieties growing side-by-side.

All peppers, whether sweet, mild, or hot, have their own distinctive flavor. Hot peppers, of course, offer our taste buds the additional sensation of heat and, depending on variety, this may range from barely pungent to blisteringly hot. The chemical sapsaicin is responsible for this heat, which is measured in Scoville Heat Units. Peppers range from zero Scoville units for the mildest sweet pepper to 350,000 Scoville units for the hottest Habanero pepper.

From a horticultural standpoint, peppers offer attractive variations in plant habit, foliage size, texture and color, and many different sizes, colors, and shapes of the fruits.

Sunflowers

Unquestionably one of the hottest trends in home gardening is sunflowers. Did you happen to notice the centerpiece in the floral bouquets given the medal winners at the Olympics this past summer? That's right, it was a big, beautiful sunflower! This humble American native has received a great deal of recent attention from plant breeders in Europe and Japan, where many of the new cut-flower varieties were developed. Two of the goals that breeders hope to attain are pollen-free flowers for the florist trade and a wider range of pastel colors.

The classic sunflower is a tall, upright plant with a stiff stem and a single, large bloom at the top. The blossom consists of a ray of broad yellow petals and a large, dark central disk of fertile flowers that develop into the familiar plump seeds.

Modern sunflowers now come in a wide array of colors. Some have stiff stems, on some the stems are relaxed. The height may range from one or two feet tall to giants 12 to 15 feet tall or more. Few bear only a single flower. Most are multi-branched with many smaller blooms. With all this variety, it's hard to pick a favorite. I'll take the easy way out and declare the entire display a sure winner.

Organic Fertilizers

The organic fertilizer demonstration consists of six plots, each approximately 75 square feet in area. Five of the plots received an application of a single type of fertilizer, either bone meal, blood meal, aged manure, millorganite (sewage sludge), or cottonseed meal. The plots will receive applications of the same single fertilizer through the years of the study. A control plot did not, and will not, receive any fertilizer. Each plot was planted with petunias.

The early returns for the first growing season indicate virtually no discernable differences among the growth and performance of the six plots. Keep in mind that organic fertilizers must first be broken down by soil microbes before their nutrients become available to the plants. It will be interesting to observe this demonstration in the upcoming years and note any changes in plant response. For this first year, however, one conclusion is definite, and that is that the visual impact and olfactory delight of perfume emanating from over 400 solid square feet of healthy petunias has met with rousing approval from visitors.

Beds demonstrate the effects of different soil amendments.

Organic Amendments

Of all the experimental plots, perhaps the most dramatic has been the organic amendments display. This experiment tests the effects of adding different organic amendments to improve soils. The basic soil used was very low in organic matter and very high in clay content. Peat moss, straw, pine needles, human hair and sawdust were incorporated separately into each 75 square foot plot, and no other fertilizers were added. Once again we included a control bed, which receives no amendments. Madagascar periwinkle, *Vinca* 'Pacific Punch', was planted in each plot.

It takes years to improve soils by incorporating organic matter. Gradually, heavy clay soils become lighter and better aerated. This in turn allows good root development. As organic matter breaks down through the action of soil organisms, nutrients are released. However, the organisms also require nutrients for their biological processes and they are first in line to use them before the nutrients are released to the plants. In soils where nutrients are in short supply and high demand, plant needs are not met. If no other fertilizer is added, plants begin to yellow and fail to thrive.

This is most dramatically demonstrated in the sawdust bed. High carbon amendments such as sawdust or other wood products require high levels of available soil nitrogen to satisfy the needs of soil microbes as well as the plants. All season long, the *Vinca* in this plot has been extremely yellow and lacking in vigor. In fact, the plants actually diminished in size from the healthy trans-

continued on the next page

plants they were in the spring. In the peat moss, pine needles, straw, and control plots, the plants held their own for the most part. Overall foliage color was somewhat pale green and, while the plants grew, none were distinguished by green vigor.

The Hair Plot

This was not the case, however, for the hair bed. After we incorporated human hair into the soil, which tills into the soil about as readily as oil mixes with water, the bed had a decidedly fuzzy appearance. In truth, it looked like the final resting place of every coonskin cap that ever made it to the Western frontier. Amid the snickering of Garden staffers, the *Vinca* was planted, but none of us were prepared for what happened this summer. The plants grew with astounding vigor, producing deep green foliage and prolific bloom. Even the purslane, a weed of fertile soils, thrived.

The idea of using human hair as fertilizer is championed by Bill Black, a barber and entrepreneur from St. Louis. Over the years, he noticed that plants in his shop that were close enough to the barber chairs to receive a regular dusting of clippings grew with more vigor. Acting on a hunch, he experimented with hair fertilizers and refined a soil-like product that he markets under the name of (what else) FertHAIRlizer, which may be purchased in the Garden Gate Shop.

Why did the hair experiment seem to work so well? Hair is 97 percent protein, of which 18 percent is nitrogen. This is 10 to 15 times more than any of the other materials used in the display. Hair is also a bulky material that creates pore space and aerates the soil, promoting root growth.

Remember that it takes time for raw organic matter to break down and enrich the soil. Will the disparate results evident this year hold up over the next three years of this experiment? It will be fascinating to follow the performances of the plants and find out.

Vaughn Seed Trials

The beds at the easternmost edge of the Experimental Garden were dubbed the Vaughn Seed trials this year. Vaughn Seeds is a wholesale distributor of high quality seeds to the professional industry. You won't see Vaughn's name on seed packets, but most gardeners have grown their plants. This bed features recent introductions of outstanding, garden worthy annuals. By the time you read these words, frost will likely have occurred and the season will be winding down, but the mums in the Vaughn beds will still be going strong.

Take time out soon to visit the exceptional resource that is the Justin A. and Rose J. Naumann Experimental Garden. Chances are you'll run into me out there. I'll be the guy with the notepad furiously jotting down ideas to take back home to my own garden.

—Chip Tynan,
MBG Horticultural
Answer Service

Master Gardener Training Course Scheduled

THE MASTER GARDENERS, a joint program of the Garden and University Extension, provides skilled volunteers for many community service programs, including the Garden's Horticultural Answer Service, the Plant Doctor at the Kemper Center, the Speakers' Bureau, Information Specialists, the Soule Center for Older Adults, Gateway to Gardening, and other community outreach programs. The background and experience required for these activities varies with the program area.

Be a part of this exciting, challenging group of volunteers! The next Master Gardener training course will be held January 22 through April 30, 1997, on Wednesday mornings from 9 a.m. to noon. Call (314) 577-9441 to request more information and an application.

HERB SOCIETY MAKES GIFT — The St. Louis Herb Society has given $7,500 to help support improvements planned for the herb garden at Tower Grove House. Sue Reed, outgoing president of the Herb Society, presented the check to Peter Raven at the Society's annual meeting on June 7, 1996, shown here. Members of the St. Louis Herb Society, which has been active at the Garden for over 50 years, help to maintain the herb garden display.

New Vernal Pools

Visitors to the Arboretum's wetland area will notice that the trail from the Loop Road has been rerouted to weave among several shallow pools separated by low hillocks. The pools and mounds were built to resemble the "swell and swale" topography characteristic of some prairie regions in central North America. Such landscapes provide a wide variety of moisture levels, allowing a diverse groups of plants to grow in a relatively small area.

The new pools are shallow to allow them to dry out each year in late summer. Temporary ponds of this type are called "vernal pools," as in the vernal, or spring, equinox, since they reach their highest water levels in spring. Such pools are ideal breeding sites for salamanders and certain frogs vulnerable to predation by fish, which cannot inhabit vernal pools.

In addition to amphibians, the new vernal pool complex will develop a rich, colorful, diverse population of plants. This summer the area was seeded with non-persistent annual species to hold soil, and seeds of appropriate permanent vegetation will be sown this fall.

— James C. Trager,
Shaw Arboretum staff naturalist

The wetlands

This Fall at Shaw Arboretum

Native Plant Sale

Shaw Arboretum • Sunday, September 8, 1996
10 a.m. to 4 p.m.

Under the tents at the main entrance, rain or shine. Admission (includes Arboretum admission): $3 adults; $2 seniors age 65 and over; children age 12 and under are admitted free. Admission is free to Garden members.

Missouri native plants of prairie, glade, woodland, and wetland habitats will be available, including the best natives for home landscaping. All plants will be sold in containers and are nursery propagated, not wild collected. Nowhere else will you find such an extensive collection of Missouri native plants available under one tent!

Featuring:

Bowood Farms, Elixir Farm Botanicals, Forrest Keeling Nursery, Gilberg Perennial Farm, Hamilton Seed and Wildflowers, H.E. Nurseries, Missouri Wildflowers Nursery, Pan's Garden, Rick Clinebell, Rock Post Wildflowers Nursery, Shaw Arboretum. Plus – Grette Herrick, wildflower artist

Shaw Arboretum
Purina Farms
EXIT 253

New Signs on I-44

Shaw Arboretum is located in Gray Summit, Missouri, just 30 minutes west of St. Louis on I-44. Watch for the new signs on the highway as you approach the Gray Summit exit. For more information on Arboretum features and events, call (314) 451-3512 or 451-0850.

WHEN YOU COME for the native plant sale, be sure to plan enough time to take in the sights and sounds of Shaw Arboretum. If you haven't visited for awhile, you're in for some delightful surprises with all the new things to see.

Whitmire Wildflower Garden

Five-and-a-half acres with winding paths showcase natural plant communities, including tallgrass prairie, a glade, a wet meadow, woodland, pine and hardwood savannahs. Two woodland pools, a boardwalk, and two gazebos provide pleasant spots to enjoy the beauty of colorful native species.

Bascom Manor House

This 1879 brick home has been completely restored as a visitor facility, featuring the handsome permanent exhibit "People on the Land" developed in cooperation with the Missouri Department of Conservation.

Tallgrass Prairie, Woodland, and Wetlands

One of the priorities at Shaw Arboretum is ecological restoration — bringing back the original balance of plants and animals that existed in natural areas before they were altered or damaged by agriculture, development, or introduced species. Today the prairie, wetland, and woodland areas at the Arboretum are thriving showcases of native plants, wildflowers, birds, animals, and insects. Take the trail to the prairie overlook platform or follow the boardwalk that winds along the shoreline of the wetland for breathtaking views of these beautiful natural habitats.

PHOTOGRAPHS BY CLIFF WILLIS

And Don't Miss — Prairie Day, September 14

The first time this annual event has been held in eastern Missouri! Co-sponsored with the Missouri Department of Conservation. See page 14 for details.

Calendar

Labor Day Weekend

August 31 – September 2

22nd Annual Japanese Festival

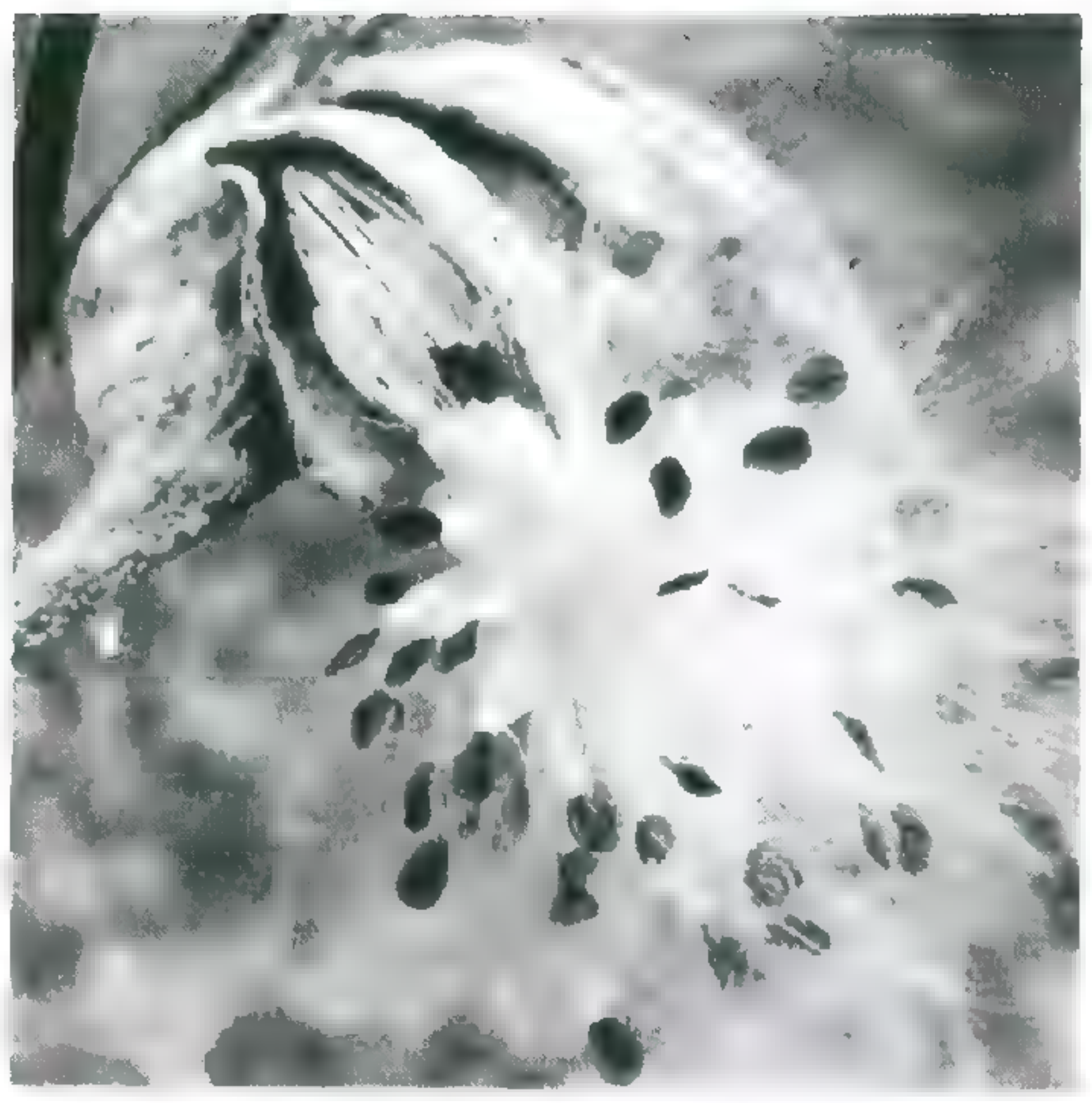
10 a.m. to 10 p.m. Sunday; 10 a.m. to 5 p.m. Monday. Enjoy authentic Japanese art, food, music, dance, and the beauty of Seiwa-en. Admission: $6 adults, $4.50 age 65 and older; $2 Garden members; children age 12 and under free.

September 7 & 8

Saturday and Sunday

Gardeners of America Flower Show

9 a.m. to 5 p.m., Orthwein Floral Display Hall. Don't miss this wonderful annual show of all the best from regional gardens. Free with Garden admission.



September 13 – November 14

"Our Wildflowers and Trees"

9 a.m. to 5 p.m. daily, Monsanto Hall. Color photographs by Margaret W. Harmon depict changes through the seasons on her woodland property in Minnesota. Free with Garden admission.

September 15 Sunday

Daylily Sale

9 a.m. to 5 p.m., Beaumont Room. The Missouri Botanical Garden Daylily Society holds its annual sale of plants from the Garden's displays, with all proceeds used to benefit the Garden. Come early for best selection! Free with Garden admission.

September 16 Monday

Lecture and Booksigning by Wade Davis

7:15 p.m., Shoenberg Auditorium, followed by booksigning. Davis, noted ethnobotanist and author, will discuss his book *One River: Two Generations of Scientific Adventure in the Amazon Rain Forest*, an account of the explorations of the renowned 20th century botanist Richard Evans Schultes. Mr. Davis's other books include *Nomads of the Dawn*, *The Serpent and the Rainbow*, and *Passage of Darkness*. Free admission.

September 19 – 22

Thursday – Sunday

Fall Bulb Sale

Thursday and Friday: 9 a.m. to 6:30 p.m.; Saturday and Sunday: 9 a.m. to 5 p.m.; in the Garden Gate Shop. Members receive 20% discount on a wonderful array of plants and merchandise. See page 19.

September 8 Sunday

Native Plant Sale

10 a.m. to 4 p.m., Shaw Arboretum. A huge selection of Missouri native plants of the prairie, glade, woodland, and wetland, plus the best natives for home landscaping. Regular Arboretum admission; free to Garden members.

September 14 Saturday

Prairie Day

10 a.m. to 4 p.m., Shaw Arboretum. Co-sponsored with the Missouri Department of Conservation, this annual celebration includes tours of the Arboretum's tallgrass prairie, games, exhibits, food, music, and more. This is the first time Prairie Day has been held in eastern Missouri. Shuttles will be available for off-site parking. Follow the herd! Admission is free to all.

From the Garden Guides

Guided tours for groups of 15 or more are available daily. Reservations are required, with five weeks advance notice. Call (314) 577-5140 to schedule tours. Consider scheduling your group tour this fall, when the Guides have more openings available in the schedule.

September 21

Saturday

"Wooden You Like to Know"

9 a.m. to noon at the Garden: Tree Walk of Champions, display of tropical woods, leaf rubbings, and tree tours at 9:30, 10:30 and 11:30 a.m. Storytelling at 10:30 a.m. with Annette Harrison and "Woody Wonders of the World." At the Saint Louis Art Museum, 10 a.m. to 1 p.m.: Discover art made of exotic woods and make a Green Man mask. Free admission at both the Garden and the Art Museum; pre-registration is NOT required.

September 28 & 29

Saturday & Sunday

Dahlia Society Show

9 a.m. to 5 p.m., Orthwein Floral Display Hall. The Dahlia Society of Greater St. Louis presents its spectacular and colorful annual show. Free with Garden admission.

October 12 & 13

Saturday and Sunday

5th Annual "Best of Missouri" Market

9 a.m. to 5 p.m. daily. See page 16 for details.

October 12 & 13

Saturday and Sunday

Gesneriad Society Show

9 a.m. to 5 p.m., Orthwein Floral Display Hall. The Gateway West Gesneriad Society presents its annual show of the popular African violet family. Free with Garden admission.

October 25 & 26

Friday & Saturday

St. Louis Youth Fair

9 a.m. to 4 p.m. daily. Over 60 organizations will be on hand with information on sports, summer camps, job placement and training programs, health, and education. Co-sponsored by the Garden and Southside Youth Service Coalition. Free admission.

October 26 & 27

Saturday & Sunday

Lily Society Sale

9 a.m. to 5 p.m., Beaumont Room. The Mid-America Regional Lily Society holds its annual sale. Shop early for best selection! Free with Garden admission.

October 30 Wednesday

Cancer Awareness Day

9 a.m. to noon, co-sponsored by the Garden, the National Cancer Institute Cancer Screening Trial, and the American Cancer Society. Valuable information from many organizations, including the American Cancer Socity, AARP, 1-800 FOR CANCER, the St. Louis Cancer Coalition, and more. Featuring a display on the Garden's role in providing valuable plant specimens and botanical information to medical researchers. Free with Garden admission.

Coming in November:

"The Private Life of Plants"

A special showing of David Attenborough's acclaimed television series — see the "Adult Courses" brochure mailed recently to all members, and watch for details in the November *Bulletin*.

Members' Days

September 18 Wednesday

"Cacti in Flower"

11 a.m., Shoenberg Auditorium. A slide presentation of beautiful flowering cacti by Virginia Horell, Master Gardener and 25-year members of the Henry Shaw Cactus Society, featuring outstanding specimens from the Garden's collection. Seating is on a first-come, first-served basis. Free, for members only.

October 1 Tuesday

"Sculpture at the Garden"

10 a.m. to noon, Monsanto Hall. Enjoy one-hour walking tours to see some of the magnificent sculpture on Garden grounds, led by knowledgeable Garden Guides. Tours leave every 15 minutes, with the last tour departing at 11:30 a.m. Free, for members only.

October 11 – 13 • Friday – Sunday

Photography Workshop with Robert Glenn Ketchum

Join the acclaimed artist, author, and landscape photographer Robert Glenn Ketchum for a very special learning experience. A Friday evening slide presentation will be followed with a Saturday field session on Garden grounds and a Sunday morning critique. Ketchum is one of America's most brilliant contemporary landscape photographers, the author of five books, and recipient of the United Nations Outstanding Environmental Achievement Award and the Ansel Adams Award for Conservation Photography. His 25-year commitment to art and activism was portrayed in "The Legacy of Wildness," an exhibit of his breathtaking photographs at the Garden earlier this year. Advance registration is required, and enrollment is limited to 14 partipants, $250 per person. Please call 577-9441 for information and registration.

AND DON'T MISS — Trish Brown, official meteorologist of the Missouri Botanical Garden, on Channel 4 KMOV-TV at 5 p.m. and 6 p.m.

Fifth Anniversary "Best of Missouri" Market

Saturday & Sunday • October 12 & 13, 1996 • 9 a.m. to 5 p.m.

Admission

(Includes Garden admission): $2 members; $5 adults; $3 seniors age 65 and over; children age 12 and under free.

Sponsored By

Commerce Bank, Premier Homes, Pepsi, KMOX, Boatmen's National Bank of St. Louis, St. Louis County Farm Bureau, Clifford Willard Gaylord Foundation, Missouri Department of Agriculture – Agri Missouri Program

Crafts

Hand-Thrown Pottery
Willow Furniture
Carved Wooden Birds
Clay Tile
Dried Flowers & Wreaths
Decorative Ironwork
Soaps
Ukrainian Eggs
Decorated Gourds
Custom Jewelry
Rock Art
Hand-Poured Candles
Batik Wearable Art

Food

Barbeque Sandwiches
Homemade Salads
Jumbo Pretzels
Brats & Hotdogs
Soft Drinks & Beer

Entertainment

• Ray & Carolyn Wix •
from Branson, Missouri
• Bluegrass Music •
by Vesta Johnson & Friends

BEST of MISSOURI
MARKET

Produce

Baked Goods
Candies
Cider
Salad Dressings
Fruit
Gift Baskets
Herbs
Honey
Meats
Mushrooms
Preserves
Popcorn
Relishes
Sauces
Wines
& Much More!

Specialty Growers

Bowood Farms

Missouri Wildflowers Nursery

Nicholson Bonsai Studio

Herbin Center

Kids' Corner

Agricultural & Environmental Displays

Mizzou Barnyard

Milk-a-Cow Booth

Missouri Mules

Ozark Tales & Crafts with Shining Rivers School

Make Beaded Jewelry with Zuma Beach Bead Co.

Decorate a Pumpkin with Rombach Farms

Hallmark's Kaleidescope for Kids

Entrances

Enter at the corner of Alfred & Magnolia, Spink Pavilion on Tower Grove, or the main entrance on Shaw Boulevard. Additional parking will be available at Mullanphy School, 4221 Shaw, and in Tower Grove Park, where you can catch a tram shuttle to the Garden. For more convenient parking arrange a car pool, or take MetroLink and the No. 13 Bi-State Bus direct to the Garden.

Also on October 12 & 13:

The Historic Shaw Art Fair

100 artists exhibit along Flora Place, 10 a.m. to 5 p.m. Admission: $2 for Garden members.

PHOTOGRAPHS BY CLIFF WILLIS

Receiving their awards from Peter Raven on Volunteer Evening are (from top, left to right): Tom and Marilyn Chryst; Adrienne Biesterfeldt; Si Dietz; Reverend James Krings. At left, representing the Master Gardeners (from left): John Stephens, (Peter Raven, back to viewer), Monica Clapper, and Herman Easterly.

Volunteer Evening

The Garden's annual Volunteer Evening honors the achievements of some 850 men and women who contribute nearly 80,000 hours of service to the Garden each year. Seventy-one volunteers work in the Research Division, doing much of the cataloging, barcoding, and data processing required in the herbarium and library. The Education Division employs 215 volunteers as instructors, guides, and assistants. Horticulture has 315 volunteers who provide expert skills on the grounds and in community outreach programs.

Each of the Garden's volunteers is special, and their contributions are essential to the effectiveness of this institution. On Volunteer Evening, May 28, the following individuals received special recognition:

Special Achievement Award — Marilyn and Tom Chryst

Marilyn and Tom began volunteering at Shaw Arboretum in August 1995 and already have contributed 500 hours each in restoration work at the Manor House. Marilyn also works with the Arboretum's education programs.

Extra Service Hours — Adrienne Biesterfeldt

Adrienne was honored for the tremendous amounts of time she gives to the Horticulture and Education divisions. In addition to her work as a Garden Guide, she and her colleague Joyce Broughton are developing a precise map of the English Woodland Garden, a skilled and demanding project.

Career Service Award — Si Dietz

For more than 20 years, Si Dietz has been a respected and dedicated member of the Horticulture Answer Service. He is a highly accomplished gardener with a keen interest in new gardening techniques.

Commitment Award — Reverend James Krings

This award honors volunteers who regularly and conscientiously perform tasks that are not inherently rewarding. Jim works in the Japanese garden every week, in all kinds of weather, bringing good cheer and willingness to such jobs as weeding and cleaning the edge of the lake.

Organization Award — Master Gardeners

Established just 12 years ago, today the Master Gardeners number 180 volunteers who play a vital role at the Garden. In 1995 they contributed more than 14,300 hours in vitally important areas including the Horticulture Answer Service, the Plant Doctor, the Kemper Center Reception Desk, programs for older adults, community gardening, bloom recording, the Speakers' Bureau, and community outreach. As the Kemper Center continues to expand its programming, the role of the Master Gardeners will continue to grow.

Volunteer Emeritus Award —

Honors friends who are no longer active volunteers at the Garden.

Henry Bowman — Henry, who passed away on July 10, was honored for his work in the Horticulture and Maintenance divisions. Please see the memorial story on page 23.

John Brown — A Master Gardener and one of the original Answer Men, John helped develop the Answer Service and has shared his time and talent with the Garden for over 30 years.

Marjorie Maddox Tooker — For 22 years Midge served as a Garden Guide, sharing her love of nature and her knowledge of trees during wonderful tours for children and adults.

Priscilla Saxdal — Married to the Garden's former rosarian, Priscilla worked behind the counter in the Garden Gate Shop twice a week for many years, always putting in extra time for special events.

Sally Wood — Honored for her work in the Garden Gate Shop, Sally has also served as a Master Gardener and was extremely active on the Zoo/Museum District campaign in 1982.

Hattie R. Jackson

The St. Louis Board of Education elected Hattie R. Jackson as president on June 6, 1996, replacing the Rev. Earl E. Nance, Jr. With her election, Mrs. Jackson became a member of the Garden's Board of Trustees by virtue of her office. Rev. Nance will continue to serve on the Board as a term trustee.

Mrs. Jackson is associate dean of Academic Support Services and Continuing Education at St. Louis Community College at Forest Park, where she provides leadership to a staff of 50 people. She has been a member of the faculty at Forest Park since 1971 and served as a professor of English for 24 years before her appointment as dean.

A native of Tuscaloosa, Alabama, Mrs. Jackson graduated from Alabama State University and was awarded a fellowship to Illinois State University in Community College Education, where she earned a master's degree in English in 1971. She and her husband Ronald have been married for 25 years and have three children.

As a parent of children attending St. Louis schools, Mrs. Jackson is dedicated to strengthening public education and focusing on student achievement. She established the Mentoring Program at SLCC-Forest Park and as a Kellogg Fellow she developed strategies for reducing dropout rates in community colleges. She says, "It has been exciting growing up at SLCC because it has nurtured the very soul of what I am committed to, which is helping students achieve."

In addition to her work as a faculty member, Mrs. Jackson is active in the St. Louis community. She has served on the board of Leadership St. Louis and the Girl Scout Council of Greater St. Louis, and as chairperson of the American Association of Community Colleges (AACC) North Central Region of the Council on Black American Affairs. She also was co-chair of the effort to establish the first guardian ad litem program for the city of St. Louis, which trains volunteers to assist children whose family situation is being decided in the courts.

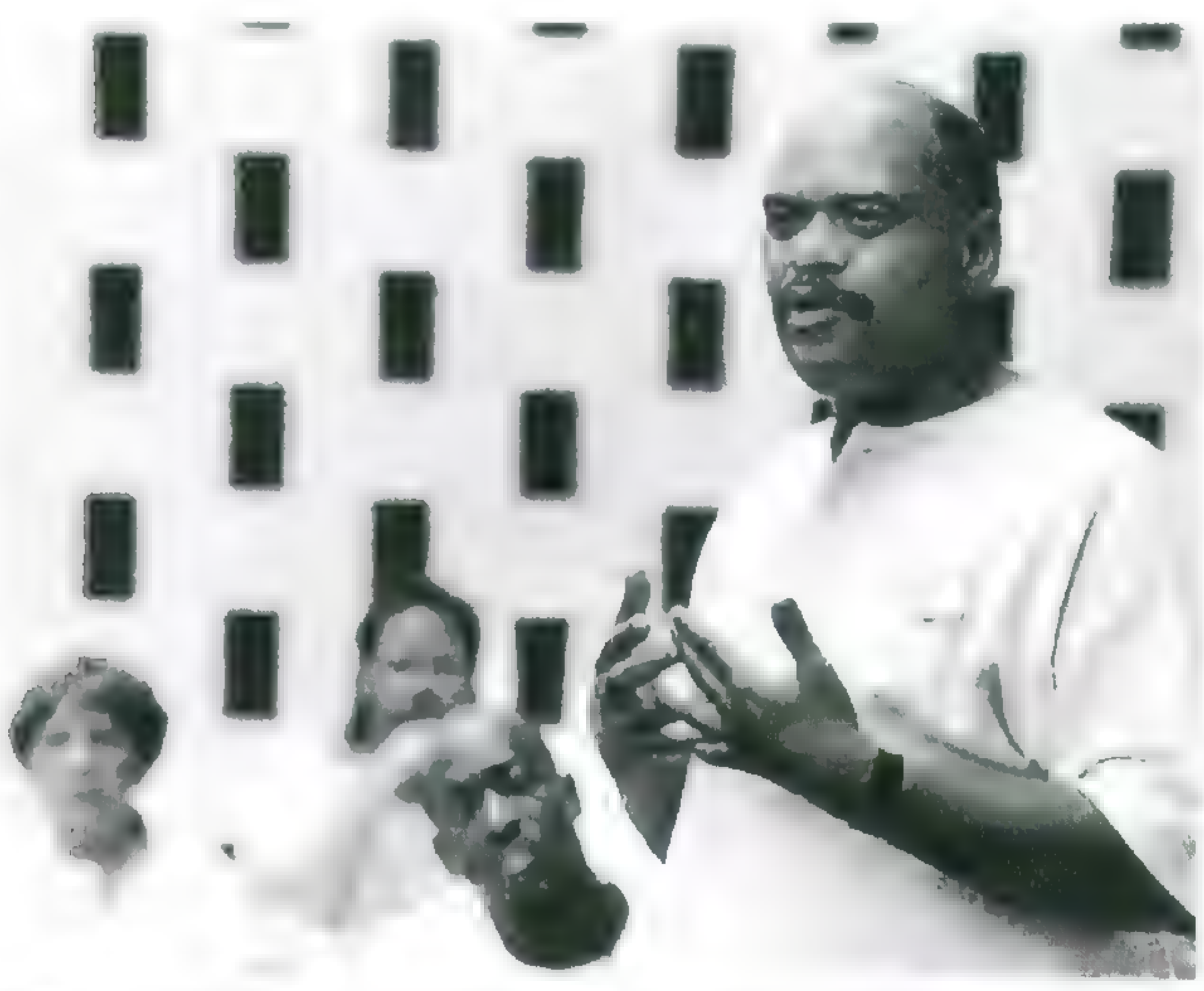
Mrs. Jackson said, "Serving as a trustee of the Garden is an exciting opportunity to enlarge our dynamic partnership for helping St. Louis public school children achieve success in their educational goals. I am looking forward to working with Peter Raven and the education staff at the Garden, who are doing so much to help expand community involvement in education."

Peter Raven said, "Having an educator of Mrs. Jackson's ability on the Board will be an enormous benefit to the Garden and will certainly help us strengthen our education programs for children in the St. Louis community. We welcome Mrs. Jackson to the Board of Trustees and look forward to working with her."

The Garden's Diversity Council: "New Beginnings"

On November 20, 1991, the Garden's Board of Trustees passed the Resolution establishing the Missouri Botanical Garden Diversity Council. Just as the Garden is devoted to preserving and understanding plant diversity in the world, it is committed to nurturing and appreciating human diversity at the Garden. The Council is managed by staff in consultation with the Garden's director. Its overall purpose is to eliminate racial and ethnic polarization and to increase multi-cultural representation.

During the first evolution of the Diversity Council, committees were formed to analyze the areas of programming, audience development, membership, employment and volunteers, and contracts and purchasing in order to determine ways in which the Garden could further its goals surrounding diverse representation. Several effective programs and resources were established, including a list of local minority-owned businesses, an expanded employment and volunteer recruitment base, better access to the Garden via the Shuttle Bug and bus lines, and enhanced programming and membership outreach programs.



CLIFF WILLIS

Rudy Nickens speaking at one of the "Valuing Diversity" sessions

In 1996, Sue Wilkerson, director of Human Resource Management, and Doug Sutherland, instructor in the Education Division, enrolled in a week-long workshop titled "Dismantling Racism," sponsored by The National Conference (formerly known as The National Conference of Christians and Jews). Several other staff members attended day-long sessions called "Building An Inclusive Community." Additionally, three members of the Human Resource Management Division attended training programs to enable focused conversations about the panorama of human diversity. It is from these educational experiences that the Diversity Council's second phase, "New Beginnings," was born.

A committee of Garden staff members, including Sue Wilkerson, Susan Smith, Doug Sutherland, Pat Lynn, Mike Mosley, and Ihsan Al-Shehbaz, announced the Council's new beginning with a presentation at the April 1996 staff meeting. Using the format established by The National Conference, staff were invited to participate in an eight-session program called "New Beginnings: Valuing Diversity." Ben Chu of the Horticulture Division has joined the group as part of the facilitation team. One session has grown to three separate weekly sessions, and there are approximately 85 staff members from all Garden divisions participating.

Recently, the lunchtime group was honored by a visit from Rudy Nickens, a core faculty member for The National Conference and an international trainer who spoke on the topic of internalized oppression. Mr. Nickens is a member of the Anti-Racism Educators, Organizers and Trainers Network and director of the Black Men's Peace Initiative. Mr. Nickens is a "traveler for diversity," attending the Million Man March in Washington, D.C.

continued on next page

GARDEN GATE SHOP

New in the Shop

- MBG signature souvenirs with colorful new Garden scenes — postcards, keychains, magnets, and bookmarks.
- New "enabling" tools for gardeners with disabilities, including lightweight rakes and long-reach pruners.
- Plus — A handsome new "clipper" jacket that features the MBG logo!

New for the Holidays

- **1996 MBG Holiday Cards** – Two colorful new cards by St. Louis artists Ann Thompson and Elizabeth Tipton. Please call (314) 577-9449 for information and advance orders on cards.
- **1997 MBG Calendar** – Features stunning new color photographs by Jack Jennings, plus a colorful poster on the Garden's research program in Madagascar. $10.95.

August 31 — September 2

Japanese Festival

Festival tee shirts, origami paper, teas, statuary, table fountains, and books.

Meet the Authors:

- *Herbal Bonsai: Practicing the Art with Fast-Growing Herbs*, by St. Louisan Richard Bender, 112 pages, Stackpole Books, $16.95; booksigning Saturday, August 31 and Sunday, September 1, 9 a.m. to 8 p.m.
- *Enhance Your Garden with Japanese Plants*, by Judy Glattstein, 226 pages, Kodansha, $25; booksigning Monday, September 2, 11 a.m.

September 18 Members' Day

"Cacti in Flower"

Members save 15 percent on all cactuses and cactus merchandise, including potting soil, books, gifts, toys, notecards, and foods of the Southwest.

September 19 - 22

Fall Bulb Sale

Thursday and Friday: 9 a.m. to 6:30 p.m.
Saturday and Sunday: 9 a.m. to 5 p.m.

Members save 20 percent on a spectacular variety of spring bulbs, accessories, tools, and bulb booster fertilizer. Meet Rick Weijers (Weyers), a bulb specialist from Holland, who will be on hand to answer questions on Thursday. Also choose from fall perennials, hardy mums, grass seed, bulb books, and the MBG video, "Practical Down-to-Earth Home Gardening: Spring Flowering Bulbs," $19.99.

October 12 & 13

"Best of Missouri" Market

Introducing — Portmeirion's classic herb pot, now with the MBG logo

Meet Missouri Artists

- Carol Bartfeld – Photographic botanical prints.
- Sharon Nadeau – Handmade ceramic figurines.
- Kathy Potter – Vintage floral arrangements.
- Ann Thompson – MBG Holiday cards.
- Dr. Manfred Thurmann – Hand-carved birds, boxes, plates, and coasters.
- Deborah Wildebrandt – Painted mirror frames, boxes, mugs, and more.

Meet the Author

Reading and booksigning on Saturday, October 12, at 2 p.m. in Cohen Amphitheater: *Pepe's Family Reunion*, a new children's book by Fiona M. Norris, the first in a new series of botany books for children from BRIT, the Botanical Research Institute of Texas.

October 1 Members' Day

"Sculpture at the Garden"

Members receive a 15 percent discount on all statuary and the guide book, *Sculpture at the Missouri Botanical Garden*.

October 31 – Halloween

Take your pick from a patch of Halloween toys and candies.

DIVERSITY COUNCIL continued

and the 4th World Conference on Women in Beijing, China. The Council caught him between trips and he is now on his way to South Africa to work with individuals in several locations on the issue of diversity. In addition to Mr. Nickens's many endeavors to heal tension between people, he co-owns and manages the Sunshine Inn in the Central West End.

Diversity Council programs include short lectures on topics such as anthropology and privilege, as well as interactive discussion exercises designed to enhance mutual understanding and common definitions. Upon completion of the eight-session workshop, dialogue groups will be established to continue building the bridge of communication. The Council expects to offer the eight-session workshop again in 1997.

— *Susan Krobot Smith, training and benefits coordinator, Human Resource Management*

CLIFF WILLIS

Tower Grove House Doors Restored — The massive front doors of Tower Grove House were beautifully restored last winter, thanks to a gift from the Tower Grove House Auxiliary. Fern Truscheit, a volunteer tour guide at the House, is shown welcoming visitors at the handsome front entrance.

NEWS FROM TOWER GROVE HOUSE

Volunteer Guides Needed for Tower Grove House Tours

If you have ever been fascinated by history, antique furniture, or life in the Victorian era, share your enthusiasm with visitors to Tower Grove House as a volunteer tour guide. Henry Shaw's country home, built in 1849, is beautifully restored with authentic period furnishings. Visitors from all over the world enjoy educational and entertaining tours of Tower Grove House led by volunteer guides.

New volunteers are needed to give tours on weekends and weekdays from 9:45 a.m. to 1 p.m. and from 1 p.m. to 4:30 p.m. Training is provided. For information and an application, please call the Volunteer Office, (314) 577-5187.

Starr Foundation Awards $600,000 Grant to Flora of China

The Starr Foundation has made a four-year grant of $600,000 to support the Flora of China project, a landmark international study with its headquarters at the Garden. The foundation made a previous five-year grant of $250,000 and a three-year supplement of $75,000 to support the Flora of China in May, 1991.

Flora of China is the source of crucial information for scientists and conservationists worldwide.

"This is absolutely wonderful news," said Dr. Ihsan Al-Shehbaz, who coordinates the project at the Garden. "The Starr Foundation's generosity will help us achieve our goal of finishing the Flora of China project in about 12 years. We are extremely grateful for their ongoing support."

When complete, the Flora of China will include 25 volumes of text and 25 volumes of illustrations, with all information available electronically. The project is based on the 80-volume *Flora Reipublicae Popularis Sinicae* (FRPS), a monumental study in Chinese that has been in preparation since the mid-1950s. The Flora of China will be the first modern English-language account of the 30,000 vascular plants of China.

China is about the same size and latitude as the continental United States, but it has about twice as many species as the U.S. and Canada combined. Many are of enormous economic, horticultural, and pharmaceutical value.

China is the only country in the world with unbroken connections between tropical, subtropical, temperate, and boreal forests. It is the native homeland for one-eighth of the world's flora, including many endemic, or unique, species. Intense land use and development threaten more than 3,000 Chinese plant species with extinction, and many have already been lost. All of these factors make the Flora of China a source of crucial information for scientists and conservationists worldwide.

After nine years of negotiations, largely through the efforts of the Garden's director Dr. Peter H. Raven, the agreement to produce the Flora of China was signed at the Missouri Botanical Garden in October, 1988. Raven and Wu Zheng-yi, director emeritus of the Kunming Institute of Botany, serve as co-chairs of the international editorial committee.

More than 600 scientists from the U.S., China, Canada, the United Kingdom and other European countries, Japan, Australia, and Russia are collaborating on the Flora of China. Western centers for the project are the Arnold Arboretum, Harvard University; the California Academy of Sciences; the Smithsonian Institution; the Royal Botanic Garden, Edinburgh; and the Missouri Botanical Garden. Chinese centers are the Institute of Botany, Beijing; the Kunming Institute of Botany; the Jiangsu Institute of Botany, Nanjing; and the South China Institute of Botany, Guangzhou.

Flora of China is a massive collaboration that transcends political and geographic boundaries. By promoting exchanges between Chinese scientists and their colleagues in the West, the project is helping to train a new generation of Chinese botanists by bringing them abroad for study and research.

The first volume of the Flora of China was published in 1994, the second in 1995. Volumes are published jointly by the Missouri Botanical Garden and the Science Press of the Chinese Academy of Sciences, Beijing. Final pages are prepared for press at the Garden.

Mellon Foundation Supports Landmark Project

The Garden's Center for Bioinformatics is fundamentally changing the way science is done and shared.

Imagine that your family reunion is coming up, and you want to produce a book on your family history. You have lots of relatives — 12 brothers and sisters — and each of your parents comes from a big family, too. Hundreds of your cousins all over the country are writing long letters to you and to each other, trying to verify family history and relationships. Uncle Joe can't finish the account of his branch of the family until he gets some information from Cousin Jack, and Jack needs to talk to Aunt Jane first. Meanwhile Aunt Jane is travelling for six months, and Cousin Bill has to have his letters typed because you can't read his handwriting. And everyone is calling you to ask questions.

This nightmare is not too different from the complexity of producing a large scientific database using traditional publishing methods. Coordinating the efforts of hundreds of scientists based all over the world has traditionally been expensive and inefficient. Simply speeding up operations or adding staff does nothing to simplify the number of tasks required to complete the project.

The Garden's Center for Botanical Informatics is working to change all that, with the support of a three-year, $285,000 grant from the Andrew W. Mellon Foundation. Using the newest ideas in computer technology and communications, the project aims at nothing less than revolutionizing the way scientific studies are managed and produced. The experiment will create a system using computer-supported collaborative work processes to streamline interactions among participants in the Flora of North America project and serve as a model for other large scale studies.

The Flora of North America (FNA) is currently one of the country's largest scientific collaborations, involving more than 700 scientists in the U.S. and Canada and more than 30 institutions providing core support, with its headquarters at the Missouri Botanical Garden. The project first received funding in 1987 and is expected to be complete about 2006. It will produce at least 27 printed volumes, CD-ROM versions of the books, a new relational database, and a variety of information accessible via the Internet, including a World Wide Web site.

"Finishing these kinds of complex projects more quickly translates into significant savings, as much as 50 percent if we finish just four years earlier than expected," said Dr. Nancy R. Morin, convening editor of FNA. "Finishing early allows scientists to move on to other projects. It puts valuable information into the hands of scientists and policy makers sooner and creates more resources for biodiversity efforts."

Dr. John L. Schnase, director of the Garden's Center for Botanical Informatics, said, "Perhaps the most important aspect of this work is that it is fundamentally changing the way science is done and shared. A general framework designed to coordinate information via computer builds projects from the bottom up rather than organizing from the top down. Each individual in the scientific community can participate in coherent, large scale efforts. We are extremely grateful to the Mellon Foundation for supporting our efforts to make this experimental technology a reality."

The prototype will be tested during preparation of individual volumes of the *Flora of North America* in cooperation with the New York Botanical Garden, and evaluated by Dr. Morin and Dr. Schnase in cooperation with FNA's publishers at Oxford University Press.

Garden Students Earn Graduate Degrees

FOUR STUDENTS recently completed their graduate degrees through the International Center for Tropical Ecology, a cooperative program between the University of Missouri-St. Louis and the Missouri Botanical Garden. "This summer there was a bumper crop of excellent students in plant taxonomy at the Garden," said Dr. P. Mick Richardson, manager of graduate studies. "We are delighted that these young people have completed their training at the Garden. They will be leaders in documenting the biodiversity of tropical regions of the world."

Two of the students were Germán Carnevali and Ivón Ramírez, a husband and wife team from Venezuela who earned their doctorates working on plant families containing many epiphytes, a group of plants that are comparatively poorly known. Germán completed his Ph.D. thesis on the genus *Cryptocentrum*, a group of neotropical orchids, and is now at CICY (Centro Investigaciones Científicas, Yucatán) in Mérida, Mexico. Ivón, who was the Elizabeth A. Baltzer Fellow 1989-91 and 1993-94, has also been hired to work at CICY. She did her Ph.D. studies on the genus *Cryptanthus*, a group of bromeliads that is endemic to Brazil.

Andre Chanderbali, a native of Guyana, completed his master's thesis on the genus *Endlicheria* in the Lauraceae, or laurel family. Andre is currently expanding hs studies of this important group of timber trees as a Ph.D. student at UM–St. Louis. Francisco Lorea also worked on the Lauraceae for his Ph.D. study of the neotropical species *Cinnamomum*. He has returned to Mexico to work at the Instituto de Ecologia in Xalapa, Veracruz.

From left: Germán Carnevali, Ivón Ramírez, Andre Chanderbali, Francisco Lorea.

CPC Will Hold Rare Plant Task Force Meeting

The Elizabeth Ordway Dunn Foundation, Inc., has awarded the Center for Plant Conservation (CPC) a $16,000 grant to organize and host the Florida Rare Plant Task Force meeting in 1996. In cooperation with Bok Tower Gardens in Lake Wales, Florida, CPC will use this meeting to determine and coordinate priority conservation activities and revise the Florida plant conservation action plan.

Historically, the CPC and rare plant task force participants have been instrumental in establishing clearer conservation priorities within the state, raising the level of involvement and collaboration in Florida's native plant conservation efforts.

Steyermark Is Honored by Venezuelan Society of Landscape Architects

The late Dr. Julian Steyermark, a Garden curator, has been posthumously elected an honorary member of the Venezuelan Society of Landscape Architects. Professor John Godfrey Stoddart, president of the Society, wrote, "Although it is some time since Julian left us, we still remain in his debt for his appreciation of Venezuelan flora. We have always felt that he should have received much more recognition for his unflagging enthusiasm and enormous contribution to the knowledge or our flora."

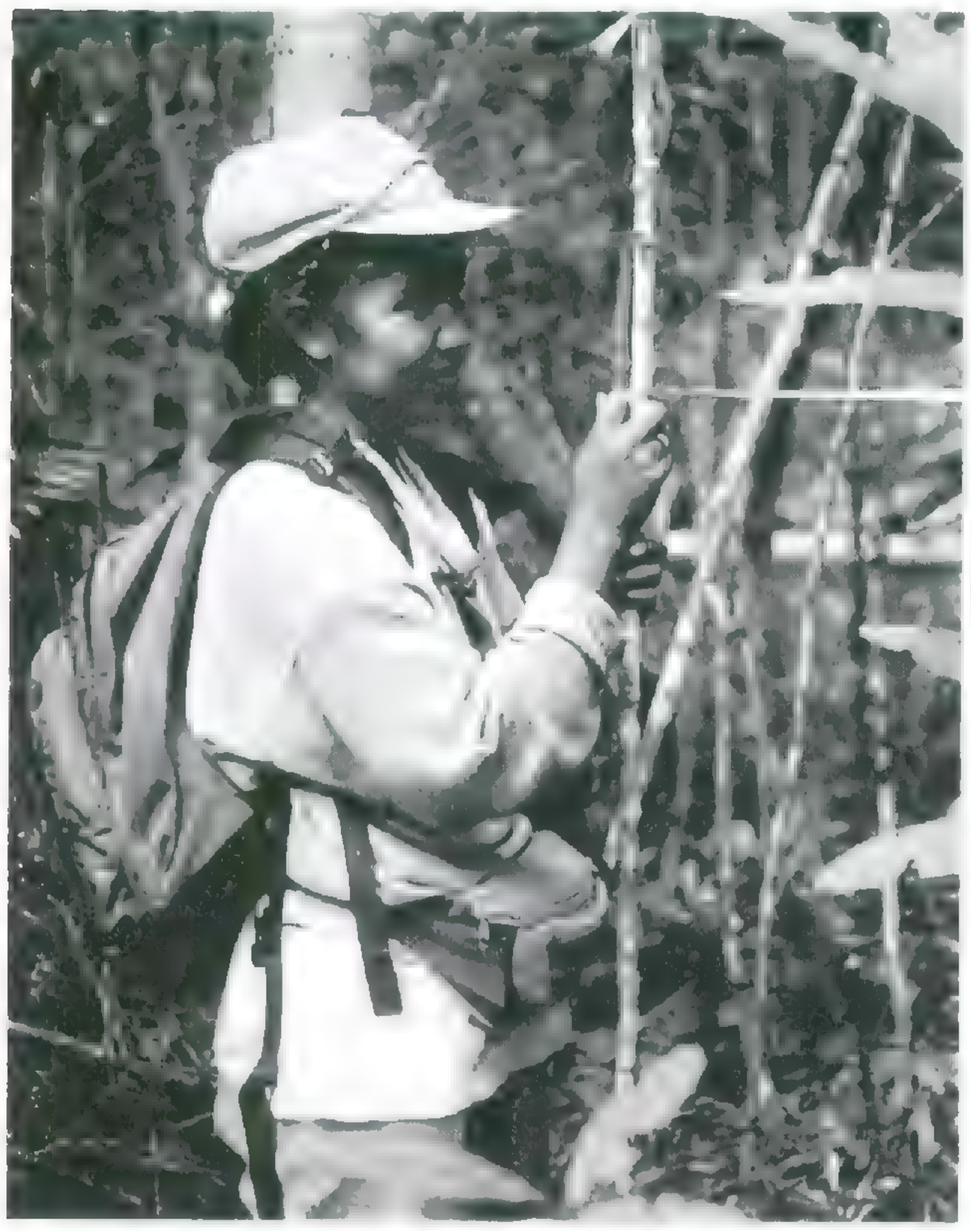
Dr. Steyermark began the monumental scientific study *Flora of the Venezuelan Guayana* in 1983. In 1995 the first two volumes of the projected 11-volume series were published. The project has been based at the Garden since 1984 and directed by Garden curator Dr. Paul E. Berry since Steyermark's death in 1988.

UMSL AWARDS WORLD ECOLOGY MEDAL — The International Center for Tropical Ecology at the University of Missouri – St. Louis awarded its World Ecology Medal to José Maria Figueres, president of Costa Rica, at a ceremony at the Garden on June 15, 1996. President Figueres was honored for his international leadership in furthering conservation and sustainable development. The award was accepted on his behalf by his mother, Karen Olsen Beck de Figueres, presidential assistant and special ambassador. Mrs. Figueres was accompanied by Ambassador Sonia Picado of Costa Rica. Shown at the reception following the award ceremony are (from left): Dr. Blanche Touhill, chancellor of UM-St. Louis; Ambassador Picado; Peter Raven; Mrs. Figueres; Robert R. Hermann, chairman of the advisory board of the International Center for Tropical Ecology. Dr. Touhill and Mr. Hermann also serve as members of the Garden's Board of Trustees.

Botanical Training in Tanzania

THE LIZ CLAIBORNE/ART ORTENBERG FOUNDATION AND THE JOHN D. AND CATHERINE T. MACARTHUR FOUNDATION recently funded a new Integrated Botanical Training Program in Tanzania. The program is modeled on a successful Garden program in Madagascar, which these foundations have supported since the early 1990s.

Dr. Porter P. Lowry, head of the Garden's Africa and Madagascar Department, says, "We are extremely grateful to the Claiborne/Ortenberg Foundation and the MacArthur Foundation and are very pleased that they share our interest in focused, practical conservation efforts. Thanks to their generous support, we will be able to implement an innovative three-year program in Tanzania, which will begin in late 1996."



GEORGE SCHATZ

The Garden can make a lasting contribution to conserving the continent's flora by assisting Africans with the training needed to do the job. Left, Malagasy botanists trained by the Garden establish permanent forest plots to monitor diversity and ecological changes.

Like Madagascar, Tanzania has a rich flora in need of conservation because of rapidly increasing pressures on its natural resources. Tanzania is committed to training more people in ecology, botanical research and conservation, and is eager to work with international organizations and colleagues to meet its conservation needs.

Practical Skills

"The emphasis of this program," explains Lowry, "is not on traditional academic graduate study, but on practical training."

For example, plant collecting and ecological monitoring techniques are essential first steps in understanding the plant diversity and conservation needs of an area. While this work requires attention to detail and careful documentation skills, it does not generally call for someone with an advanced degree. The Garden will help to recruit qualified individuals from the local community and will provide them with the skills and equipment needed for botanical inventory work.

Collaboration

Providing local collectors with the specific skills they need helps to expedite urgent projects. The program also provides intensive in-service training to staff of Tanzania's principal botanical institutions and offers basic training to staff of non-botanical institutions.

Lowry continues, "This program helps to establish a stable botanical network throughout the country, by integrating work and disseminating information."

As the North American Center for the Study of African Botany, the Garden has a 25-year history of plant collecting in Subsaharan Africa, and has strong collaborative ties with botanical research institutions throughout the continent, including Tanzania. The program will be conducted through the National Herbarium of Tanzania in Arusha, The Institute of Traditional Medicine in Dar es Salaam, The Department of Botany at the University of Dar es Salaam, and The Tanzania Forestry Department Herbarium based in Lushoto.

Dr. William R. Mziray, director of the National Herbarium in Arusha, will act as the coordinator of the training program. Peter B. Phillipson of Rhodes University in South Africa, who has worked with the Garden's programs in Madagascar for nearly a decade, will serve as the project's technical advisor.

The training program will also take advantage of the special skills of Garden staff. Roy Gereau, who has extensive field experience in Tanzania and speaks fluent Swahili, will conduct a workshop on specimen collection, field drying, and note preparation. Dr. George Schatz, who has worked with the training program in Madagascar, will instruct the trainees on establishing and analyzing inventory and ecological monitoring plots.

Long-term Benefits

The ultimate goal of the training program in Tanzania, as in Madagascar, is to build the local botanical capacity. The approach of the Garden program is based on four principles, which are to invest in the careful, appropriate training of young people, to endeavor to instill in the trainees a sense of pride and a clear understanding of the importance of their work for the future of their country, to help the trainees find stable jobs that are stimulating and motivating, and to promote an open, collaborative approach to botanical work that cuts across projects, institutions and geographical areas, and encourages the exchange of ideas and the sharing of experiences.

The importance and potential long-term benefits of the Garden's integrated botanical training programs for Africa have been recognized by the Central African Regional Program for the Environment (CARPE), which was recently established by the United States Agency for International Development (USAID). Earlier this year, the Garden received CARPE funding to organize and conduct a three-day workshop last March in Libreville, Gabon.

During the workshop, Garden staff met with representatives from botanical institutions in Gabon, Cameroon, Congo, and Zaire, and with specialists from American environmental institutions to discuss whether the integrated training approach developed by the Garden could be adapted to meet the needs of central Africa. CARPE also funded a follow-up trip to discuss the idea with representatives of the central African conservation community and government officials, who expressed strong support for a new training program.

"By adapting the approach developed in Madagascar to the specific needs of other botanically rich areas in Africa," says Lowry, "the Garden can make a unique and lasting contribution to the study and conservation of the continent's flora by giving Africans the tools they need to do the job themselves. Their hard work and dedication will in turn help us at the Garden to advance our own research activities. Everyone benefits, and each person contributes in the most appropriate way possible."

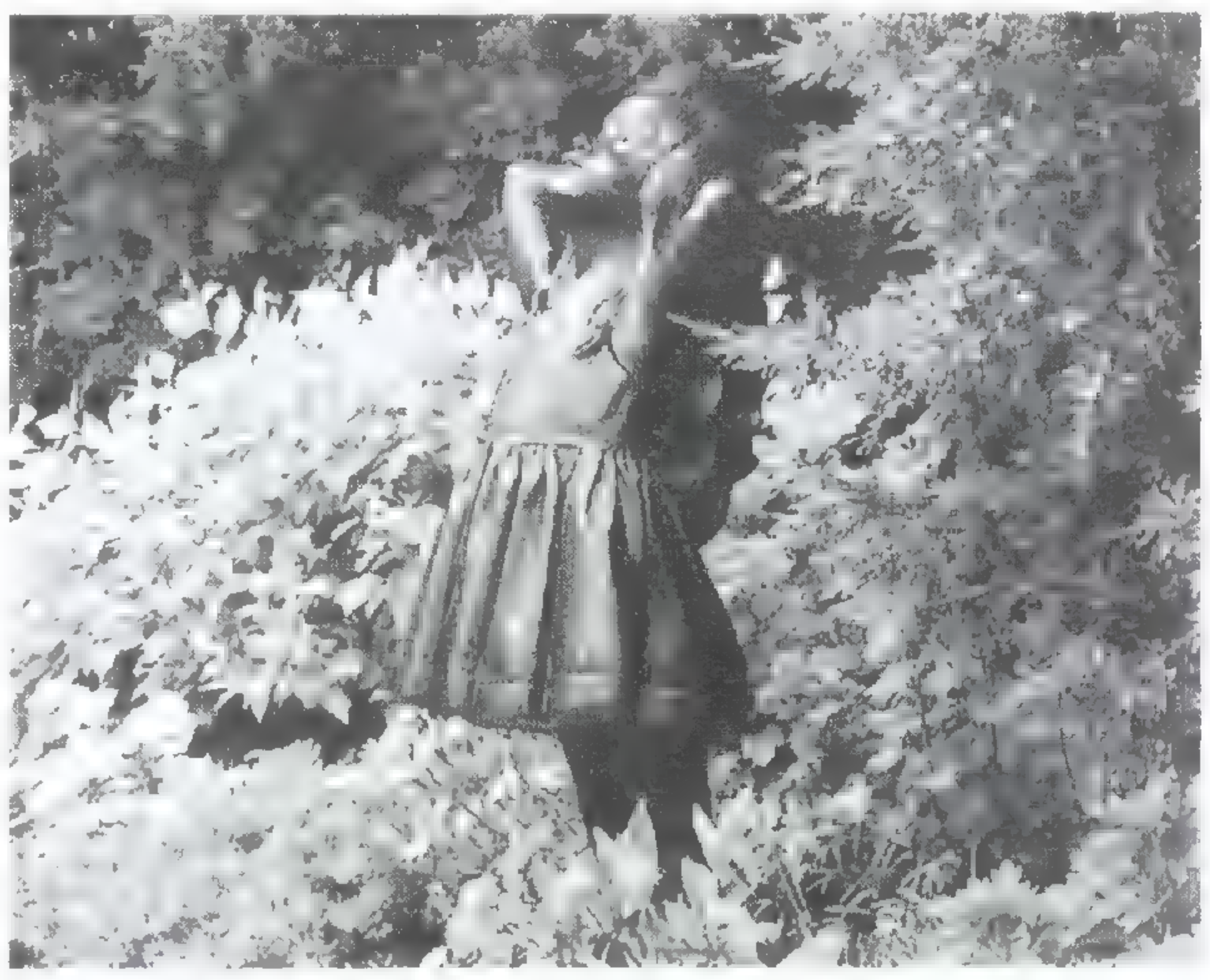
— Carol Davit, MBG staff

Mary Plant Faust

Members, staff, and friends of the Garden were saddened by the death of Mary Plant Faust on May 3, 1996. Mrs. Faust and her late husband, Leicester Busch Faust, were longtime friends of the Garden; Mr. Faust was a member of the Garden's Board of Trustees 1954 until his death in 1979, serving as emeritus trustee 1973-79.

In 1986 Mrs. Faust's generous gift supported the renovation of the water lily pools facing the Climatron. In 1993 she gave the lovely bronze sculpture *Cora*, which stands in the rock garden outside the Shoenberg Temperate House, in memory of her husband. *Cora*, a life-size figure by St. Louis sculptor Don Wiegand, was given in the name of Mrs. Faust's granddaughters, Mary Spivey Dangremond of Old Lyme, Connecticut, and Jane Spivy Keough of Exeter, New Hampshire.

Mrs. Faust served on the boards of many civic organizations since the 1930s. She was a former head of the women's committee of the St. Louis Symphony Orchestra and a past president of the St. Louis Garden Club. She and her husband were benefactors of many St. Louis cultural institutions, including the St. Louis Art Museum, Washington University, St. Louis Abbey, and Maryville University. In 1968 they donated the land for Faust Park in Chesterfield, which includes the home of Frederick Bates, second governor of Missouri.



The "Cora" sculpture

Henry Bowman

Staff, volunteers, and friends of the Garden were saddened by the death of Henry Bowman on July 10, 1996. Mr. Bowman, a volunteer a the Garden since 1977, received a Volunteer Emeritus award at the Garden's annual Volunteer Evening on May 28, 1996.

Until retiring as an active volunteer, Henry faithfully gave six or seven hundred hours of service to the Garden each year. He was a mainstay in the greenhouses, where the staff relied on his inventive tools and techniques for displaying plants indoors and out. He was honored with the Special Services Award in 1982.

Henry Bowman was born in 1903 and lived in St Louis all his life. He served in the Navy, then worked as a pipefitter and welder with Union 562 for 55 years. In 1992 he was profiled in the *Bulletin*, which said, "Sometimes a volunteer becomes so much a part of the Garden it is impossible to imagine how the place would function without him."

Roger Tory Peterson

Roger Tory Peterson, famed ornithologist, artist, author, and naturalist, died July 28 at the age of 87. Peterson's classic *Field Guide to the Birds*, first published in 1934, revolutionized the study of birds in the wild with the clarity and beauty of its colorful paintings and precise prose. Through the years, Peterson's field guides to birds in the East and West of the United States have sold seven million copies and are always in print.

In March 1986, the Garden presented its Greensfelder Medal to Roger Tory Peterson, in honor of his lifelong contributions to environmentalism and conservation. The author of more than 50 books, Peterson was a distinguished lecturer, educator, photographer, film maker, and world traveller. In recent years he had been active in the Roger Tory Peterson Institute of Natural History in Jamestown, New York.

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The following bricks were donated to the Members' Entry Court at the William T. Kemper Center for Home Gardening between June 1, 1996, and July 31, 1996.

BRONZE SIGNATURE BRICKS

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Mildred and Sylvester E. Villa
Clifford E. Lecoutour
Marjorie W. Lecoutour
Peter H. Raven
Olga Martha Montiel
Walter & Rosemarie Saar
Walter Saar
Raymond & Mary Worseck
Raymond and Mary Worseck

ENGRAVED BRICKS

Grace Alexander
Carol Greco
Raymond J. & Louise Barnes
Ray and Louise Barnes
Raymond & Mary Barnes
Ray and Louise Barnes
Anna C. Bellville
From her children
Pauline & Tom Berry
Paul E. Berry
Brittany & Taylor Bevirt
Pat Mueller "Grand Pat"
Dorothy Boner Kuehn Blessin
Nancy Thompson
Lucile E. Boettcher
Louise Davidson
Maynard & Jadienne Caster
M. Michele Povich
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Don Cochran Family
Ned Crocker Family
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Janet L. Foley
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Paula Fracasso and John Francis
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Bill and Virginia Frein
Eleanor Frein
Mary Frein
Bill and Kate Kniest
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Roland Jester
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Inside This Issue

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THE PARTNERSHIP CAMPAIGN
Federal support for the research center; the Piper Observatory is dedicated.

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Remembering family and friends.

Fifth Anniversary "Best of Missouri" Market

Saturday & Sunday • October 12 & 13, 1996 • 9 a.m. to 5 p.m.

Admission
(Includes Garden admission): $2 members; $5 adults; $3 seniors age 65 and over; children age 12 and under free.

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NOVEMBER/
DECEMBER 1996

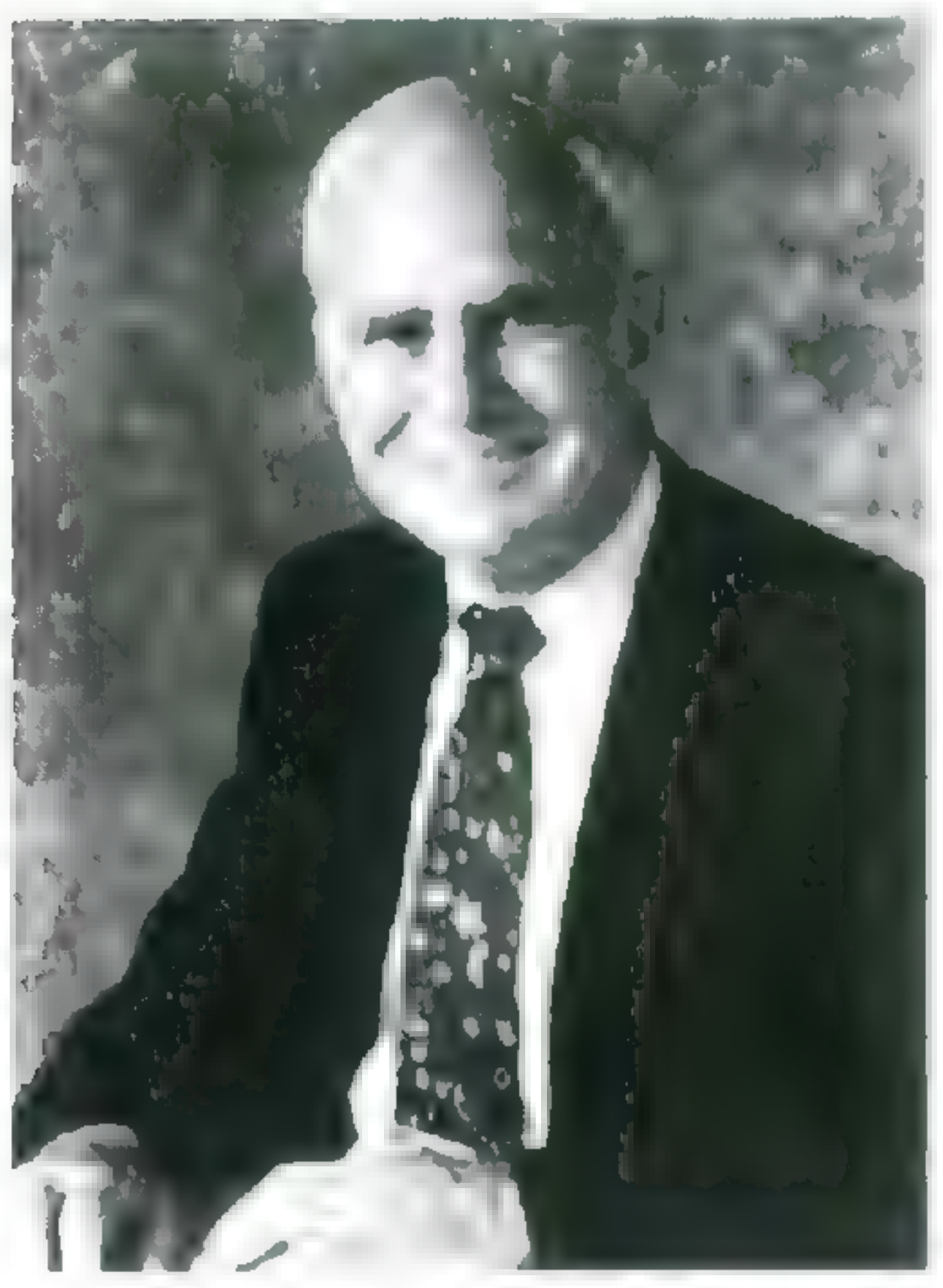
VOLUME LXXXIV
NUMBER SIX

Comment

MISSOURI BOTANICAL GARDEN MISSION: "TO DISCOVER AND SHARE KNOWLEDGE ABOUT PLANTS, IN ORDER TO PRESERVE AND ENRICH LIFE."

At year-end, I think we all like to stop for a moment to take stock — of where we are, and where we are going. It still surprises me to remember that in 1971, when I first came to the Garden, only a few acres had been developed for public display. This essentially included the original ten acres of Henry Shaw's 19th century garden, plus the Climatron. Based on the careful, reasoned approach of our 1972 Master Plan, we have worked together over the years to bring the Garden to its present splendor — 79 acres at once vibrant and serene, fascinating to people of many interests while remaining a place for quiet spiritual renewal.

This year the physical expansion of the Garden was essentially finished, a great milestone. From here onward, we will be working to provide new and better services for our members and our community, and to consolidate our financial strength as we move forward into the next millenium. As I look at what we have accomplished together over the past 25 years, it gives me great pleasure to be able to thank each of you for the faithful support that has allowed the legacy of Henry Shaw to flourish.



I am also delighted to announce that the Garden has been awarded a $1 million challenge grant by The Kresge Foundation toward the completion of the Partnership Campaign. We are very grateful for this wonderful support for the final phase of our capital fund drive; please see the story beginning on the next page.

As we enter the busy holiday season, I hope you will enjoy all the delightful family events here at the Garden and join us in celebrating another wonderful year. — *Peter H. Raven, Director*

INFORMATION

24-Hour Information on Events:
GardenLine – 577-9400

24-hour recorded information about Garden events, hours, admission, and directions. Outside area 314, call 1-800-642-8842 toll free.

24-Hour Information on Gardening:
HortLine – (314) 776-5522

You will need a touch tone telephone and a brochure listing the hundreds of HortLine messages to use this service. Request a brochure from the Kemper Center for Home Gardening at (314) 577-9440, or send a stamped, self-addressed envelope to HortLine at the address below.

24-Hour Employment/Volunteer Hotline:
(314) 577-9401

Information on jobs and volunteer opportunities at the Garden is available with a touch tone phone. Listings are updated bi-weekly. Horticultural Answer Service: (314) 577-5143 Monday through Friday, 9:00 a.m. to noon.

Horticultural Answer Service: 577-5143

9:00 a.m. to noon, Monday through Friday.

Master Composter Hotline: (314) 577-9555

9:00 a.m. to noon, Monday through Friday.

Visit the Garden on the World Wide Web:
http://www.mobot.org/

Mailing Address:

Missouri Botanical Garden
Post Office Box 299
St. Louis, Missouri 63166-0299
(314) 577-5100

Garden Hours

9 a.m. to 5 p.m. every day except Christmas; 9 a.m. to 8 p.m. Memorial Day through Labor Day. Grounds open 7 a.m. Wednesdays and Saturdays.

Kemper Center for Home Gardening:

9 a.m. to 5 p.m. daily; Plant Doctor: 10 a.m. to noon and 1 to 3 p.m., Monday through Saturday. Closed Thanksgiving, Christmas, and New Year's Day.

Garden Gate Shop:

9 a.m. to 5 p.m. daily; 9 a.m. to 6:30 p.m. daily, Memorial Day through labor Day. Closed Thanksgiving, Christmas, and New Year's Day.

Gardenview Restaurant:

Buffet service during hours the grounds are open.

Tower Grove House:

9:45 a.m. to 4:30 p.m. daily, last tour starts at 4 p.m. Closed Thanksgiving, Christmas, and for the month of January. Admission is free for Garden members.

Shaw Arboretum

Shaw Arboretum is located in Gray Summit, Missouri, just 30 minutes west of St. Louis on I-44. Open seven days a week, 7 a.m. to one-half hour past sunset. The Visitor Center is open 8 a.m. to 4:30 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday and Sunday. The Bascom Manor House is closed on Mondays. Admission is free for Garden members. For information call (314) 451-3512.

Moving?
Please remember to send us your new address.

To avoid missing any of your membership mailings, we need notification of your new address at least three weeks before you move. Please enclose the mailing label on the back cover of this Bulletin and mail to:

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On the Cover

Poinsettias are a highlight of the Holiday Flower Show.
—*Photo by Jack Jennings*

Editor
Susan Wooleyhan Caine

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The BULLETIN is sent to every member of the Garden as a benefit of membership. For a contribution of as little as $50 per year, members also are entitled to free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions announcements of all lectures and classes; discounts in the Garden Gate Shop and course fees; and the opportunity for travel, domestic and abroad, with other members For information, please call (314) 577-5118

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Right: A panoramic view of the neighborhood, seen from the top floor of the Research Center where the Monsanto Library will be located.

PHOTOS BY CLIFF WILLIS

Kresge Foundation Awards $1 Million Challenge Grant

THE GARDEN'S new Research Center is closer to completion thanks to a $1 million challenge grant from The Kresge Foundation of Troy, Michigan. The Research Center is the central component of the Garden's $37 million Partnership Campaign, which has already raised $31 million toward the goal. Under the terms of the Kresge award, the Garden must raise an additional $5 million by March 1998 to receive $1 million in matching funds.

"We deeply appreciate this generous grant to help us provide superior space for staff and colleagues working in plant science and environmental conservation," said Peter H. Raven, director. "The Kresge Foundation has issued a very important vote of confidence in our ability to succeed, which will be instrumental as we work with our members and donors during the challenge period."

"We have received generous support for earlier Kresge challenge grants, including awards for the Ridgway Center, the Emerson Conservation Center, and the renovation of the Climatron and the Lehmann Building," said Patricia Arnold, interim director of development. "We look forward to working with all our members, volunteers, staff, and friends in the community to reach our goal."

The new Research Center will provide urgently needed space for the Garden's program in botanical research, one of the largest and most active in the world. The new building will house portions of the Garden's herbarium, one of the two largest in the United States, and its botanical library, one of the finest collections in the world. It will provide work space for research staff, now more than 150 people, and up to 30 graduate students working on advanced degrees in botany and biology at local universities. In addition, hundreds of scientists from the U.S. and abroad will come to work at the Research Center each year.

Today the Garden is one of the world's leading resources for information about plants. The new building is a tangible symbol of the Garden's global research and commitment to environmental leadership. The structure will embody the principles of "green" architecture, incorporating environmentally intelligent engineering, design features, and building materials in its construction and operation. In addition, the Research Center is helping to revitalize the urban neighborhood around the Garden, embodying the Garden's commitment to the city of St. Louis.

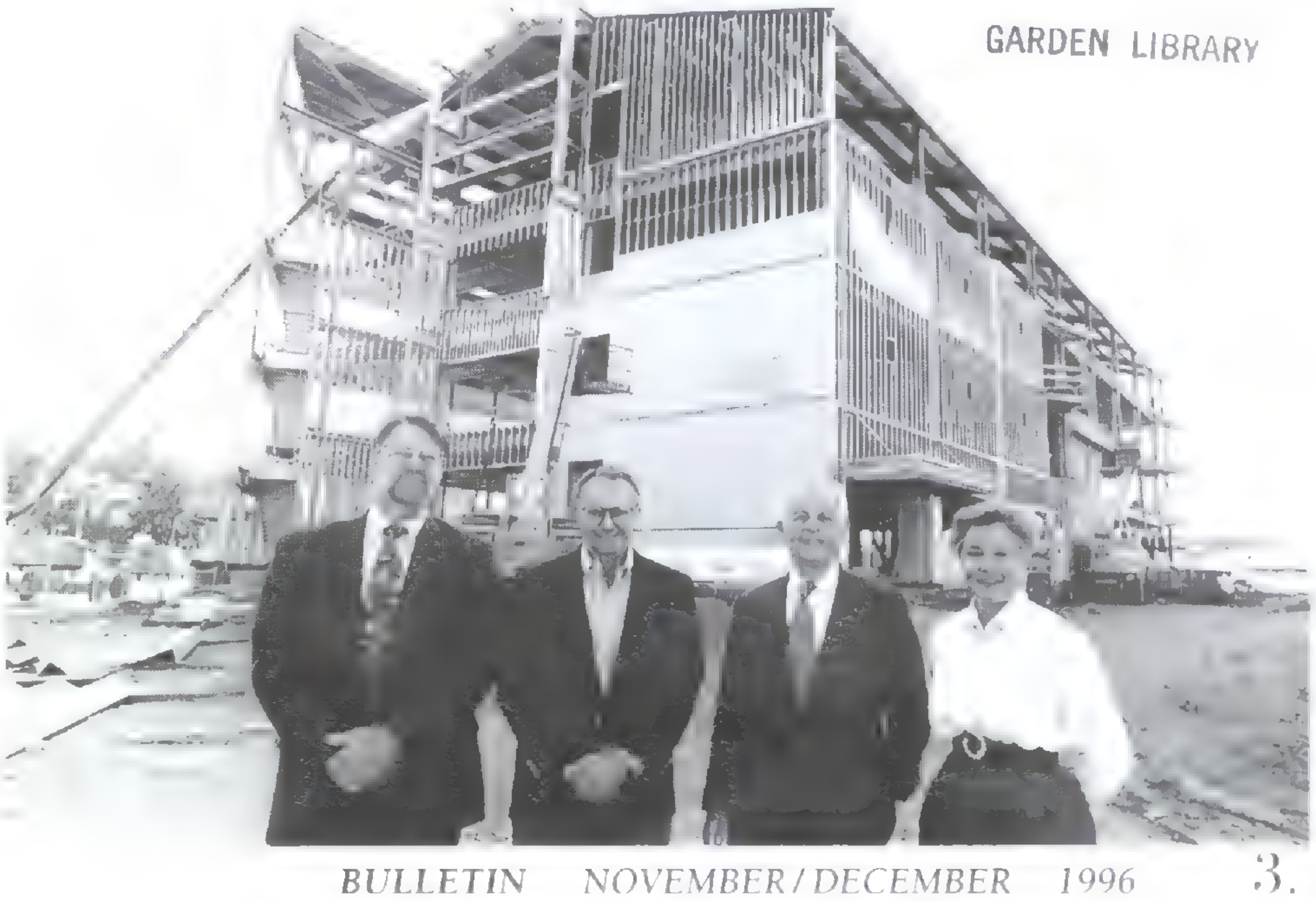
MISSOURI BOTANICAL

NOV 01 1996

GARDEN LIBRARY

Borden Supports the Research Center

Two parcels of land at the site of the new Research Center were generously donated by Borden Redevelopment Corporation at the suggestion of the Garden's longtime friend and supporter, Robert Orchard. Shown at Shaw and Vandeventer where the building is under construction are (from left) Paul Brockmann, director of general services at the Garden; Al Gioia, manager of process improvements for Borden Pasta; Robert Orchard; and Patricia Arnold, interim director of development at the Garden. Mr. Gioia said, "We are delighted to be able to help support the Garden. It is truly a wonderful institution and a great asset to St. Louis."



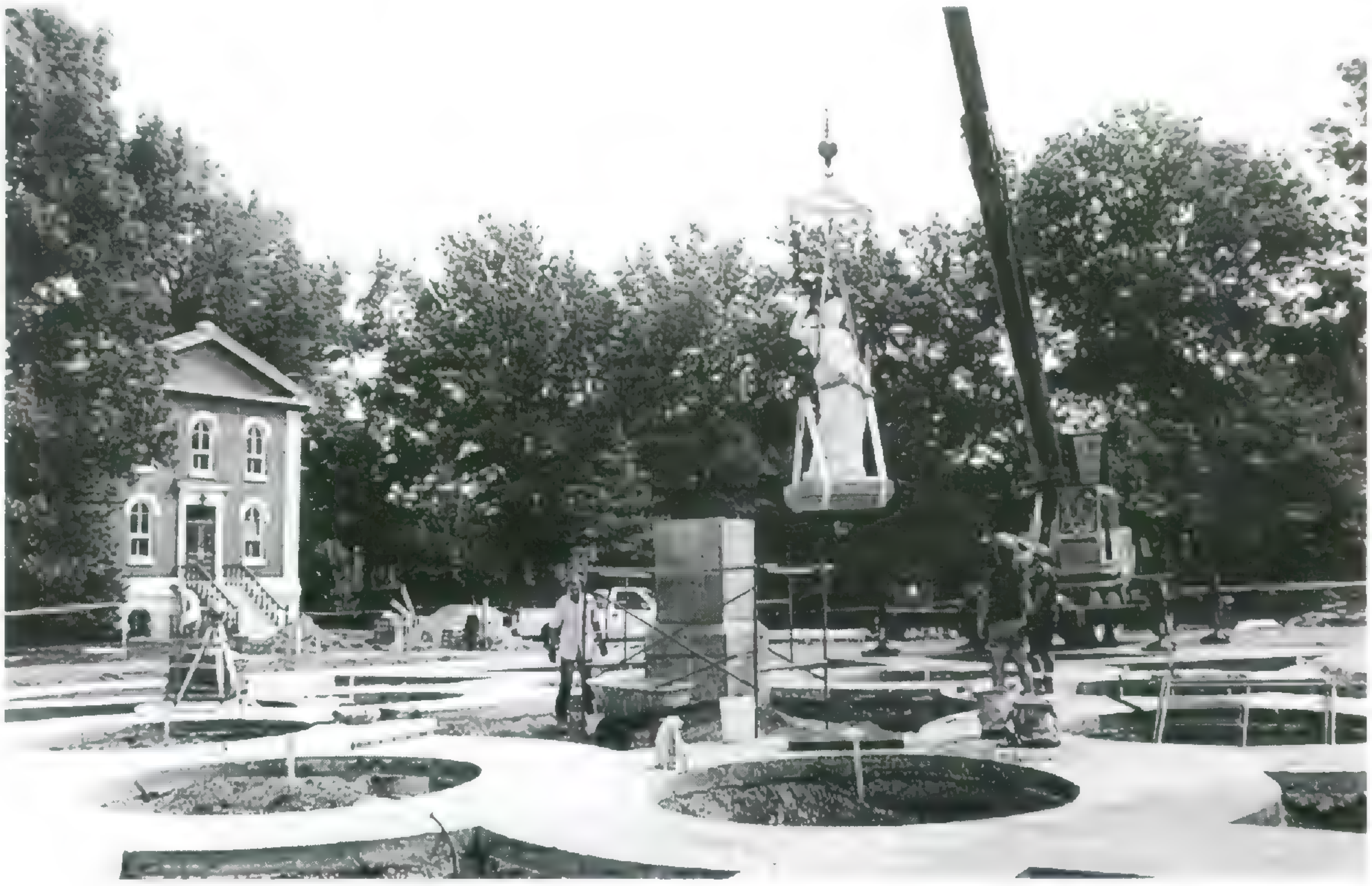
Highlights of 1996

- **Gifts and pledges totaling $31 million have been raised as of October 1, 1996. The Campaign goal is $37 million.**
- **In September, The Kresge Foundation announces $1 million challenge grant for the new Research Center.**
- **$3.1 million in support for the Research Center is included in the 1997 Agriculture Appropriations Bill, bringing total federal funding for the Center to $7.9 million.**
- **$457,000 three-year grant is awarded by the National Science Foundation for storage compactors for the new facility (see page 5).**
- **$294,000 challenge grant from the National Endowment for the Humanities, to support the new library, is met.**
- **Groundbreaking ceremonies for the new Research Center are held on April 20, 1996.**
- **Gifts and pledges are received for all 23 outdoor demonstration gardens at the William T. Kemper Center for Home Gardening. All construction and planting of gardens is completed.**
- **As of October 1, 1996, 1,150 engraved bricks and 80 bronze signature bricks have been purchased for the Members' Entry Court at the Kemper Center for Home Gardening.**
- **Margaret Blanke Grigg Nanjing Friendship Garden is dedicated in May, one of the largest and most authentic outdoor Chinese gardens in the United States.**
- **The Ruth Palmer Blanke Boxwood Garden is dedicated in June, 1.6 acres showcasing the Garden's historic boxwood collection.**
- **"People on the Land" exhibit is dedicated at the restored Joseph H. Bascom Manor House at Shaw Arboretum in June.**

PHOTOS BY CLIFF WILLIS

A TRIBUTE TO ROBERT LEE WALKER – Friends and alumni of John Burroughs School gathered at the William T. Kemper Center on September 18, 1996 to honor the work of retired faculty member Robert Lee Walker. Mr. Walker, who taught sculpture at the school for 37 years until his retirement in 1987, created the delightful bronze animals on display in the Kemper Center gardens. Shown at the reception are (from left): Dr. Keith E. Shahan, headmaster of John Burroughs School, Peter Raven, Robert Walker, and Andrew C. Taylor, a Garden Trustee and John Burroughs class of 1966, honorary chairman for the evening.

MOVING DAY – The marble statue of Juno was placed in the center of the Kresko Family Victorian Garden on September 3, 1996. Henry Shaw commissioned the Italian sculptor Carlo Nicoli to make an exact replica of the fifth century "Farnese Juno" of Naples, Italy. Carved of Carrara marble in 1885, the statue was installed at the Garden in 1887 in the formal garden near the Flora Gate. Juno has stood in several locations at the Garden through the years, and at last she has found a permanent home in the beautiful formal parterre under construction on the east side of Tower Grove House. The Victorian Garden is a major component of the Historic District surrounding Tower Grove House. A gift of Mr. and Mrs. Robert Kresko and their children, the Victorian Garden will be planted with colorful annuals next spring.



BRICKS SPAN THE GENERATIONS –

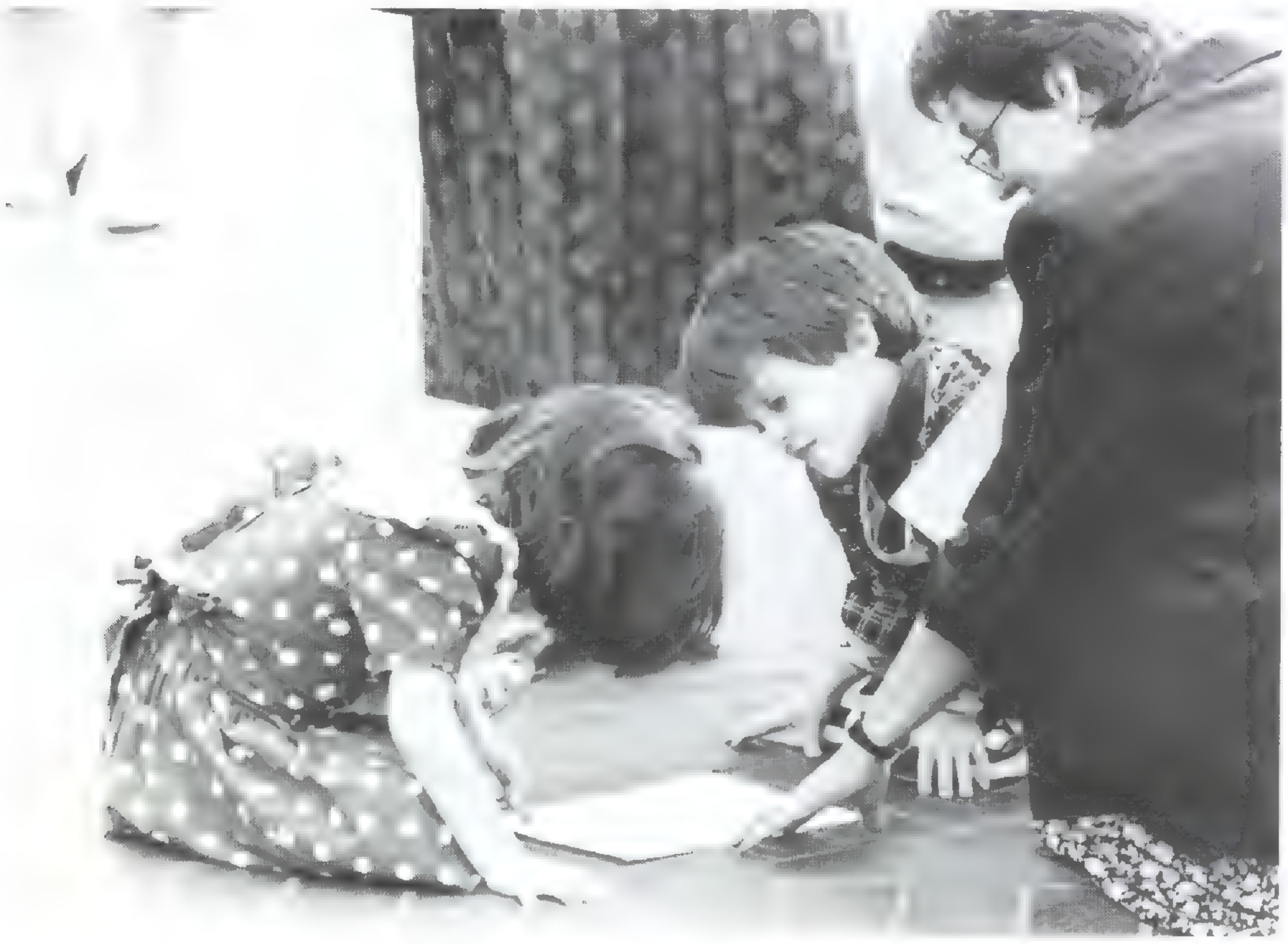
Donors of bricks in the Members' Entry Court at the Kemper Center enjoyed viewing their bricks with family and friends at a delightful evening reception on September 19.

At right, Logan Samuel Miles, age six months, examines bricks engraved with his name and the name of his cousin, Nicholas Joseph Miles, age six. The two bricks were donated to the Entry Court by the boys' grandmother Victoria Miles, a member of the Horticulture Division at the Garden.

Below, children make rubbings of their bricks during the party. All brick donations help to support the Partnership Campaign.

NICHOLAS J.
MILES
LOGAN SAMUEL
MILES

PHOTOS BY CLIFF WILLIS



Follow the Yellow Brick Road

- Engraved bricks — $300 each
- Bronze signature bricks — $1,000 each
- Up to 28 characters may be engraved on each brick — names only, please. We cannot accomodate dates or sentiments.
- Order forms are available at the Membership Services Desk in the Ridgway Center, at the Kemper Center, or you may call the Development Office at (314) 577-9495.
- Installation of bricks ordered during the winter months will depend on the weather.

Bricks make great gifts!
Order by December 15 to ensure acknowlegement by December 25.

National Science Foundation Awards Grant for Herbarium

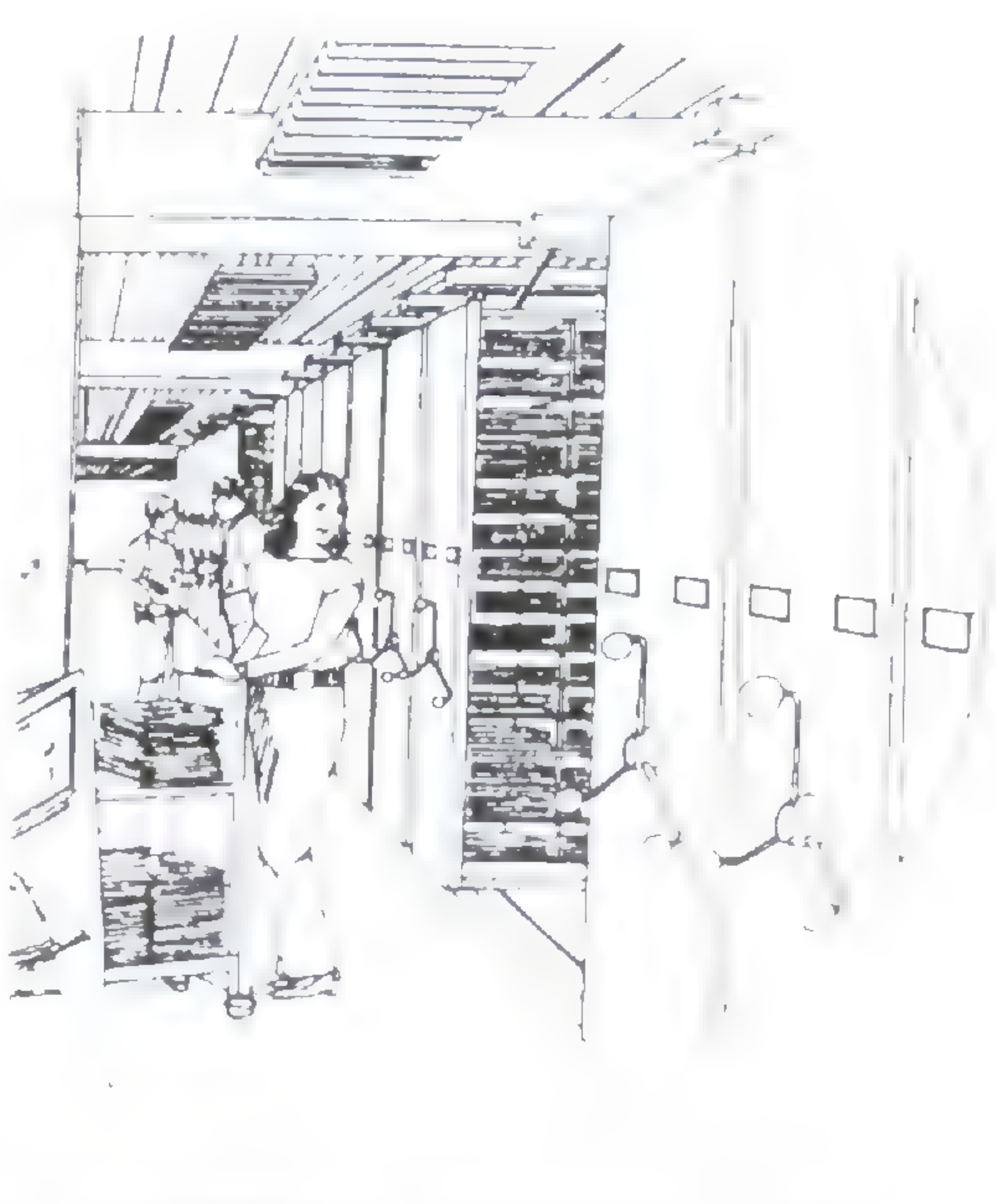
The National Science Foundation (NSF) has awarded the Garden a three-year grant totalling $457,000 toward the cost of herbarium compactors for the new Research Center. The new compactor shelving will provide safe storage for specimens and permit long-term growth of the herbarium, while allowing the entire collection to remain accessible to researchers.

At its current total of 4.6 million specimens, the Missouri Botanical Garden's herbarium already is one of the two largest of its kind in the United States. The Garden adds up to 200,000 new acquisitions every year, which will bring the collection to about 5.3 million specimens by the turn of the century. The new compactors will essentially double the storage capacity of the herbarium, alleviating the pressure on facilities in the Lehmann Building, which are already strained to capacity. Without the new compactors, portions of the Garden's collection would have to be placed in permanent storage where it would be less accessible.

The new compactors will resemble those in the Lehmann Building. In keeping with the design of the new Research Center, which seeks to have the smallest possible environmental impact while providing optimal conditions for both specimens and personnel, the new compactors are manually operated. Manual compactors operate on less energy, are simpler to maintain, cost less initially than electrically powered shelving, and are geared to allow easy movement of even the heaviest units. To further reduce energy consumption, overhead florescent lights will illuminate only the open aisles, and motion sensors will turn off lights if an open aisle is unoccupied.

Dr. Marshall R. Crosby, senior botanist and planner for the Research Center, said, "We are very grateful to the National Science Foundation for their continuing support. This grant recognizes the importance of our herbarium collection and the necessity of maintaining it as a scientific resource."

At right: A rendering of the herbarium facilities in the Research Center, showing the new storage compactors.



RENDERING BY PETER SMITH

Teacher Training Goes "On the Road"

THIS SUMMER, Barbara Addelson and Lydia Toth of the Garden's Education Division visited Kansas City to train 24 elementary and middle school teachers in aquatic biology and water quality, thanks to a grant from the Environmental Protection Agency. The five-day course, "Ecology of Aquatic Environments," was offered in conjunction with the University of Missouri-Kansas City and Powell Gardens.

The Garden developed the curriculum with funding from the EPA in 1992, for use by teachers in grades 4-8 in the St. Louis area. The program includes kits of equipment that teachers can check out to use in the classroom and on field trips. The program has been so successful, Kansas City teachers became interested in the program for their schools.

The training introduces teachers to basic ecological concepts and how to present them in the classroom. With nets in hand, the participants caught crayfish, tadpoles and dragonfly nymphs, tested the water, designed a wetlands model, and observed microscopic organisms.

Over 100 teachers have now completed the aquatic ecology course. Thousands of students on both sides of our state will reap the benefits. As one participant said, "This was the best workshop I have attended."

Nets in hand, teachers learn about aquatic ecology.

Master Ecologists at the LREC

THE Litzsinger Road Ecology Center (LREC) is a 34-acre nature preserve in St. Louis County run by the Garden as a facility for teaching ecology and natural science. The Center provides field studies and classes for teachers and students from elementary grades through high school.

Master Ecologists are volunteers trained to assist the staff. The second class of Master Ecologist trainees will be honored at a ceremony in November, including Denise Lyons, Maxine Mirowitz, Virginia Murphy, Darrel Neal, Richard Simonson, Marsha Smithing, Arthur Stepp, Maurita Stueck, Frances Vitale, and John Wynne.

The Education Division is looking for a new group of volunteers for the spring Master Ecologist training class. Susanne Reed, instructor at the Center, said, "We're looking for reliable people who want to share their enthusiasm about the natural world with students. All you need is an unquenchable thirst for knowledge with high levels of curiosity and enthusiasm and a willingness to help."

Celeste Prussia, director of the Center, added, "We see children learning about ecosystems while being guided and nurtured by the Master Ecologists. They are not just volunteers — they are one of our most valuable assets."

New Master Ecologists Needed

Training sessions will run from March 3 to May 19. All trainees are required to complete the course plus 50 hours of volunteer service at the Center to qualify for certification. Personal enrichment projects are offered to participants throughout the year as well. To apply, please call Cindy Bruns at (314) 577-9424.

Left to right: New Master Ecologists Fran Vitale and Marsha Smithing work with veterans Ilene Follman and Charlotte Walker.

CLIFF WILLIS

FRANK WOLFF CELEBRATES 25 YEARS AT THE GARDEN – Frank P. Wolff, Jr., (right) celebrated his 25th anniversary as Counsel to the Board of Trustees at the Board meeting on August 14, 1996. Mr. Wolff, a partner at Bryan Cave L.L.P., began representing the Garden in 1971 as one of his first client responsibilities. He is shown here with William H.T. Bush, president of the Board, who presented Wolff with a proclamation from the Trustees in honor of his quarter century of service. Wolff and Peter Raven began their work with the Garden on almost the same day twenty-five years ago.

Honoring 25 Years of Service to the Garden

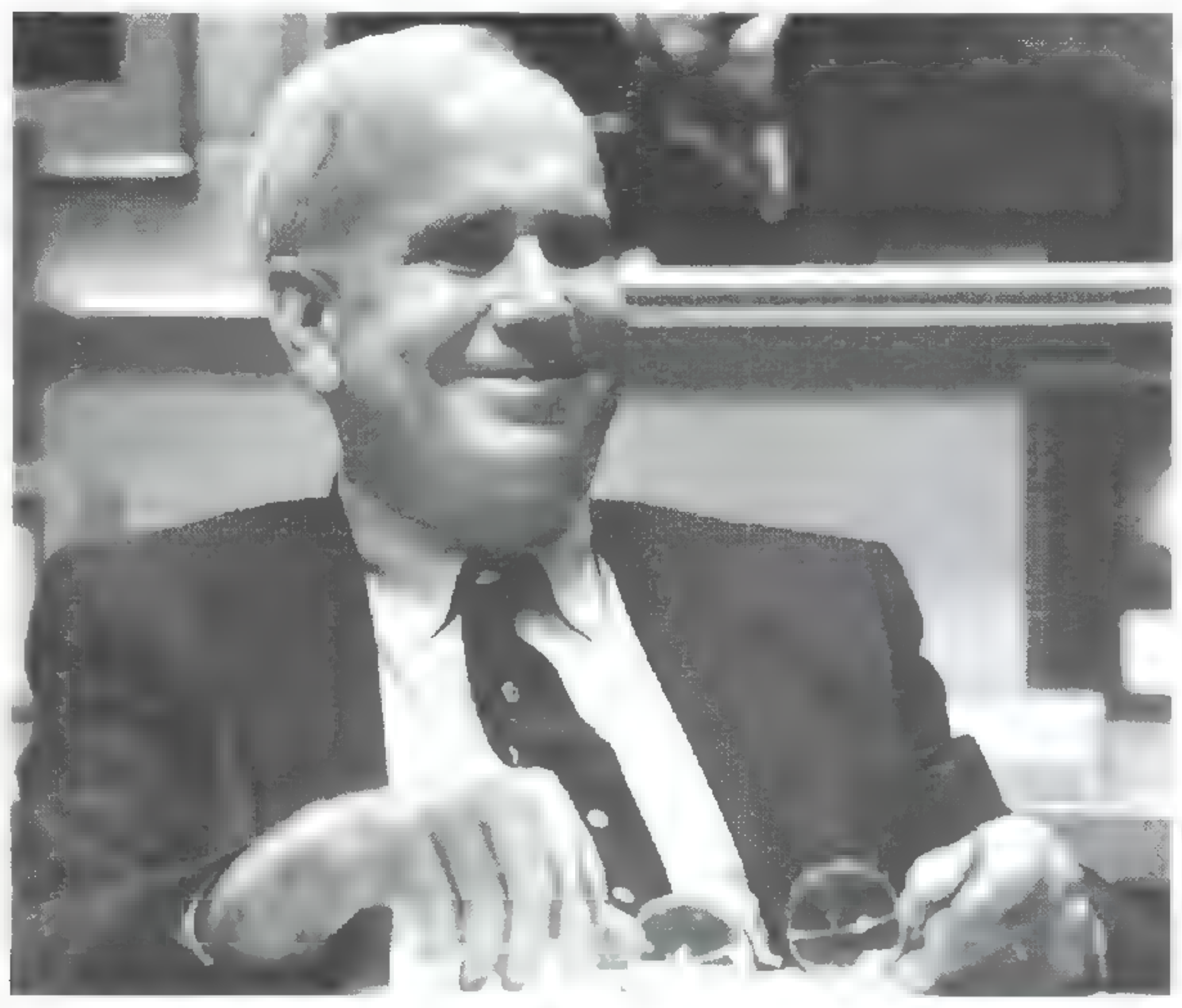
Peter H. Raven To Receive Henry Shaw Medal

by Delle Willett, Marshall Crosby, and Carol Davit

On August 1, 1971, one hundred twelve years after the Missouri Botanical Garden was founded by Henry Shaw, Dr. Peter H. Raven became the eighth director of the Garden. On November 19, 1996, Dr. Raven will receive the Henry Shaw Medal, the Garden's highest award, in honor of his outstanding accomplishments over the past 25 years.

The medal will be presented at the annual dinner in honor of major Garden donors, held at the Ritz-Carlton. The Henry Shaw Medal has been presented since 1893 to individuals who have made a significant contribution to the Missouri Botanical Garden, botanical research, horticulture, conservation, or the museum community. As a studious young botanist from Stanford University, Dr. Raven had no administrative experience when he arrived in St. Louis. Twenty-five years later, his tremendous contributions have made the Garden more beautiful and more famous than Henry Shaw could have ever dreamed.

By working with the Board of Trustees and a dedicated staff, Dr. Raven has built upon Shaw's original plan and the work of preceding directors to develop the Garden from its original ten to a full 79 acres. Much of Dr. Raven's success can be attributed to the extraordinary support he has attracted during his 25 years here — support from a committed Board of Trustees, St. Louis philanthropists, Garden members whose ranks have grown from 3,000 to over 33,000, and a talented staff that has grown from 80 to over 350 employees since 1971.


MISSOURI BOTANICAL GARDEN ARCHIVES

In the Director's Office, 1988

Peter Raven in the Climatron, c. 1975

The development of the Garden has required tremendous financial resources. Dr. Raven campaigned vigorously for the 1983 vote by St. Louis City and County that established tax support to help assure the Garden's financial security well into the future. In return, the St. Louis community has received enhanced programs in display, research, and education.

The grounds are a showplace enjoyed by three-quarters of a million visitors each year. Since 1971, the Garden has become a world leader in tropical botanical research, with collaborative programs in South America, Central America, North America, Africa, Madagascar, Russia, China, and several other Asian countries. The herbarium collection has grown from two million to nearly five million specimens.

With the construction of major new facilities, the Garden educates over 100,000 children and adults each year. It is a leader in improving the quality of science education for youngsters and works in close cooperation with St. Louis public and private schools. Carrying on the Garden's long-standing tradition of cooperation with Washington University, Dr. Raven invited St. Louis University, the University of Missouri-St. Louis, and Southern Illinois University-Edwardsville to join the Garden in forming the best botanical systematics program in the world. Since 1971, 84 graduate students from nearly every continent have studied and earned advanced degrees in botany while studying at the Garden.

Perhaps the world's leading botanist and an effective activist, Dr. Raven has been a major force in the conservation of biodiversity around the world for nearly 30 years. His leadership has influenced the United States and other countries to strengthen conservation policies and to make stewardship of natural resources a priority. The long list of his honorary degrees, honors, prizes, and memberships in the National Academy of Sciences and 13 academies of science outside the U.S. all attest to his distinguished scientific and environmental work.

Dr. Raven's biological texts have been studied by hundreds of thousands of university students in several different languages. He has also directed the graduate study of dozens of Ph.D. students. In numerous lectures and important meetings each year, Dr. Raven has been an inspiration to many. The high regard in which he is held around the world is extended to the Garden and to everyone affiliated with it. ■

"I like to think of the Missouri Botanical Garden as just getting started... My dream for the next generation is that we at the Garden continue to use our resources, our facilities, and our expertise to battle the loss of biodiversity, to make sense out of competing efforts to protect the environment, to find new ways to use plants for the benefit of all, to promote scientific education, to assist the schools here and in other cities to make education a joy and a benefit for every student, to lift the human spirit through our presentations and explanations of the beauty and purpose of the natural world."

– Peter H. Raven

Speaking at groundbreaking for the new Research Center, April 20, 1996.

Home Gardening

ATTRACTING WILDLIFE

YOUR BACKYARD can be adapted to attract wildlife and create a sanctuary for songbirds, butterflies, and other interesting creatures that roam into urban areas. You might even consider eliminating a little of the lawn that takes a lot of effort and resources to maintain. Buying a simple bag of birdseed is a good way to get started. After that, you could get hooked!

Putting Out the Welcome Mat

As you plan your garden, note the birds, insects, and animals that already visit your property and make a list of those you want to attract. The basic elements needed by wildlife are food, shelter, cover, and water. You may already have some of the plants and other features that attract wildlife. A garden with a diversity of plants will lend stability to the habitat and ensure more frequent visits by many different types of animals.

Green Spaces

We have lost some of the natural corridors that allow animals to migrate into urban areas. Your chances for attracting larger animals will be greatest if you live on a stream bed or have green spaces that connect to a wildlife area. Regardless, the more mobile forms of wildlife will find your yard if the necessary elements are in place.

Food

A good supply of food is critical for attracting wildlife. Nuts, berries, and seeds come from a variety of plants produced at different times of the year. For small mammals like squirrels, rabbits, opossums, and racoons, concentrate on supplying tree fruits from pawpaws, crabapples, pecans, walnuts, oaks, and persimmons. While most gardeners struggle to minimize squirrel and rabbit destruction in the garden, supplying them with some food crops or direct feeding with peanuts, sunflower seeds, and ground corn may actually help keep them away from your garden plants.

Fruits and Seeds

Birds are attracted to plants that produce small fruits and seeds. Crabapples, hawthorns, sassafras, black gums, dogwoods, serviceberries, viburnums, and hollies are a few good choices for fall fruit production. For summer fruits, consider mulberries, blackberries, raspberries, grapes, blueberries, and cherries.

Seed plants more commonly come from annuals and should be planted to enhance the summer fruit supply. First on the list of seed producers are sunflowers. However, there are many others that provide not only seed but a beautiful floral show, such as tickseed coreopsis, purple coneflowers, black-eyed Susans, cosmos, asters, cleomes, zinnias, salvias, and columbines. Other seed producers include Virginia creepers, catnips, sages, sorghums, tulip trees, sycamores, planetrees, river birches, maples, and a number of grasses, including prairie dropseed, sideoats grama, and switch grass.

Hummingbirds

Tiny, jewel-like hummingbirds are highly prized visitors in many gardens. "Hummers" are particularly attracted to funnel-shaped flowers, especially red ones. These tiny birds are quick to visit nectar-producing plants such as cardinal flowers, Mexican sunflowers, trumpet honeysuckles, morning glories, flowering tobacco, scarlet salvias, trumpet creepers, and beebalms (or horsemints, as they are sometimes called).

While flowers are the best lure for hummingbirds, they are also attracted to bright red sugar water feeders. The recipe for sugar water is one part sugar to four parts water, heated slightly to dissolve the sugar. Rinse the feeders and fill with fresh solution every three or four days, as it ferments quickly.

Butterfilies

Butterflies are perfect guests in the garden. To attract them, supply nectar-producing plants with flat-topped blossoms for easy landing. Try New England asters, black-eyed Susans, coneflowers, blazing stars, marigolds, zinnias, flowering tobaccos, Joe-pye weed and ox-eye daisies.

Bees

Bees and butterflies have similar preferences for nectar and pollen, and it is not uncommon to find both at the same flower in the fall. In addition to the nectar plants, don't forget to provide food for the caterpillar stages of these winged insects. Although the plants for larva are generally less attractive than the nectar-producers, they will supply leaves for eating and pupation. Some good information about these can be obtained through the Missouri Department of Conservation.

Shelter and Cover

Just like people, wildlife will need some shelter to feel comfortable in your backyard. Brush piles, old Christmas trees, rock piles, wood stacks, hollow logs, patches of prairie plants, tall meadow grasses all provide excellent cover. Densely planted shrubs make good shelters, especially evergreens such as hemlocks, bush-type junipers, mounding falsecypress, hollies, dwarf spruces, and pines. If you want a prairie-style garden, a few tall grasses such as little bluestem seem to be a magnet for birds. Keep in mind that most wildlife avoid large open areas because they fear being exposed to predators. If your yard has a wide-open space, consider planting an island bed somewhere in the middle.

An ideal habitat provides a sense of security by including plants in a range of sizes, from trees and shrubs to ground covers. Once birds acquire a sense of security in the area, you can expect to see more nesting activity, although it is difficult to predict which birds will choose to nest and what plants will suit their fancy.

Bluebirds

Our state bird, the Eastern bluebird, is a cavity nester that seeks hollows in fenceposts or dead trees to raise its young. We have had excellent results in attracting nesting pairs by providing bluebird houses. Bluebird populations declined dramatically in recent years with the development of rural areas and competition from introduced species that use similar nesting habitats, such as English sparrows and starlings.

Bats

This mysterious evening flyer is often unappreciated in the home landscape. Bats eat volumes of insects, including mosquitoes, so put away the citronella candles and put up a bat house to encourage their presence. Perhaps you have a dying tree that could be topped and left to stand in the corner of the yard, providing a habitat for squirrels and honeybees as well as bats.

Water

Water features are crucial for attracting wildlife, especially creatures that spend part of their life cycle in ponds. A natural stream will support the most diverse communities of wildlife, but pools built into the ground can provide a home for fish, some insects, turtles, and a few amphibians, such as frogs and salamanders.

The source of water does not have to be as elaborate as a pond or pool. A shallow dish will be welcome by birds and small mammals, especially if it is positioned flat on the ground. Remember that the water must always be fresh and clean to be appealing.

A constant supply of water is most important in winter, when natural sources are frozen. To create an inexpensive heated pool, buy a galvanized oil changing pan several feet wide and six-inches deep and wrap the outside with heating tape. Place rocks or bricks of various sizes around and inside the pan to allow visiting animals to enter for drinking and bathing. Plug into an outdoor extension cord so the heat will prevent any ice from forming.

More elaborate systems could be designed around a livestock water-trough heater but the expense will be considerably higher. Locating your water supply so that it receives direct sun will also help, but keep it close enough to some type of cover so that wildlife will feel protected and safe.

— Steven D. Cline, Ph.D., Manager, Kemper Center for Home Gardening

Directory of Regional Plant Societies

African Violet Council	*Ardath Miller*	394-9490
American Orchid Society (Mid-America Regional Judging Committee)	David Brown	727-2385
Belleville Area Rose Society	Dennis Nelson	(618) 233-4609
Bonsai Society of Greater St. Louis	*Peter Van Mier*	727-9191
Boxwood Society of the Midwest	*Sheila Hoffmeister*	846-8430
Dahlia Society of Greater St. Louis	*Joe Meyer*	(618) 656-4323
Federated Garden Clubs of Missouri, Inc.	*June M. Kummer*	821-5075
Gardeners of America (Ozark Region)	*Russell McClellan*	837-2470
Gateway West Gesneriad Society	*Christa Rariden*	776-2823
Greater St. Louis Daylily Society	*Pat Thomann*	773-2931
Mid-America Regional Lily Society	*Fred Winterowd*	423-5313
Missouri Botanical Garden Daylily Society	*Mirko Bolanovich*	965-7471
Missouri Mycological Society	*Ken Gilbert*	458-1458
Missouri Native Plant Society	*George Yatskievych*	577-9522
Missouri Orchid Society	*Ron Taube*	961-0577
North American Rock Garden Society	*June Hutson*	577-9402
O'Fallon Iris Society	*Roy Bohrer*	240-8780
Orchid Society of Greater St. Louis	*Diana Plahn*	965-5007
Rose Society of Greater St. Louis	*Robert W. Schneider*	524-3167
St. Louis Evening Herbalists	*Marilyn D. Miller*	481-0755
St. Louis Herb Society	*Barb Ottolini*	532-4644
St. Louis Horticultural Society	*Diane Brueckman*	469-3102
St. Louis Water Garden Society	*Bonnie Alford*	962-2263
West County Daylily Club	*Roy Bohrer*	240-8780

Home Gardening

CORNELIA SUNNEN BACKYARD GARDEN

PHOTOS BY CLIFF WILLIS

"Fishing Otters" fountain, by Robert Lee Walker, in the Sunnen Backyard Garden

The backyard garden provides an extended living space for many homes. The Sunnen Backyard Garden on the north side of the Kemper Center for Home Gardening shows how the right plants can create a relaxing, delightful outdoor room.

Light

Like many home patios, the Backyard Garden has varied light exposures. The deep shade cast by the eaves of the building is in sharp contrast to the northern, full sun exposure in the rest of the space. Shade is crucial for a comfortable living space on hot summer days, and the plantings enhance the effect.

On the west side of the backyard garden we have an attractive variety of shrubs that tolerate partial shade, including *Viburnum opulus* 'Nanum', the white flowered *Clethra alnifolia*, and the evergreen shrubs, holly *Ilex* × *meservae* 'China Girl' and littleleaf boxwood, *Buxus microphylla* 'Morris Midget'. To create interest and brighten the areas of deepest shade, we chose two underutilized plants: St. John's wort, *Hypericum calycinum*, and Japanese kerria, *Kerria japonica*. Both produce multiple yellow blooms in early to midsummer. Another unusual shrub in this area is the mulit-stemmed, deciduous, white flowering jet bead, *Rhodotyphos scandens*. In October it produces black berry-like drupes attractive to birds. Both the jet bead and the northern sea oats, *Chasmanthium latifolium*, display informal, upright, loose growth that complement and soften the brown brick wall behind them.

Where there is full sun exposure, plants were chosen to combine low screening and seasonal floral display. One of the best flowering crabapples, *Malus* 'Mary Potter', is a small, flat topped tree that spreads laterally, creating a lovely canopy effect. Birds visit this tree in the fall and winter for its abundant red fruit.

The "Fishing Otters" fountain is surrounded by low-maintenance euonymous ground cover and a variety of shrubs, including the red flowering 'Girard Rose', pink flowering 'Herbert' azaleas, and 'Blue Princess' hollies. These species require acidic soils, making them good choices for a combination planting.

Other low growing shrubs used in the Backyard Garden include the fragrant *Viburnum carlesii* 'Compactum' and the 'Snow Queen' hydrangea, whose flowers can be used for dried arrangements. In winter the landscape is enhanced by multicolored bark on the trunk of a Chinese elm and the bright twigs of red stemmed dogwood, *Cornus sericea* 'Cardinal'.

Water Conservation

To demonstrate how gardeners can conserve both water and energy, the Backyard Garden utilizes a solar-driven drip irrigation system. Rain water from the Center's roof is collected in two 40-gallon barrels, yielding a supply sufficient to maintain a 500-square-foot area. The recycled water is pumped to the plants through a system of drip hoses, powered by a photovoltaic panel on the west-facing retaining wall that collects sunlight. The energy drives a submersible pump in the rain barrels, which is turned on and off by a float valve that measures the amount of water available for pumping.

Energy Efficiency

The Backyard Garden also demonstrates the concept of landscaping for energy efficiency. A screen of Serbian spruces, columnar white pines, and Norway spruces provides protection against cold north winds, sheltering the building and lowering heating costs.

Containers

Next spring and summer, take special note of the many containers of colorful annuals on the patio. Placed among the comfortable outdoor furniture, container plantings enhance the relaxed atmosphere. By rotating annuals in these containers throughout the season, you can create varied landscaping effects.

— Steven D. Cline, Ph.D.
Manager, Kemper Center for
Home Gardening

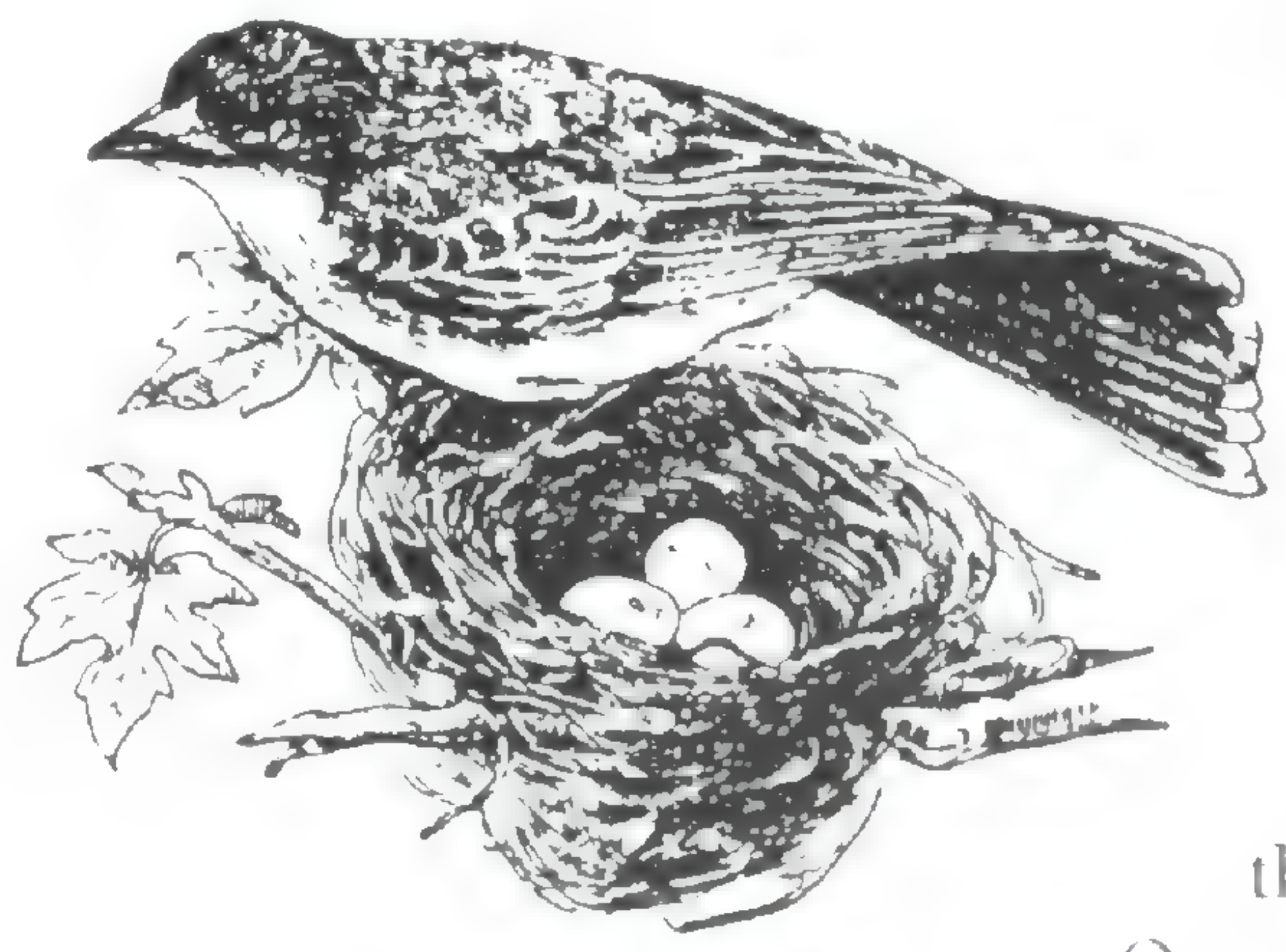
LANG FAMILY BIRD GARDEN

PROVIDING shelter and food is of paramount importance for attracting birds to your landscape. In the Lang Bird Garden, a wide variety of plants have been used to create a beautiful, quiet space filled with the sights and sounds of nature.

Trees and shrubs of varied heights have been planted to provide places for birds to land, with protection from weather and predators. Open-branched trees include purple leaf plums, *Prunus virginiana* ‘Shubert’, ‘Winter King’ hawthorns, *Crataegus viridis* ‘Winter King’, and smaller trees such as crabapples, *Malus sargentii* ‘Tina’, and serviceberry, *Amelanchier* × *grandiflora* ‘Autumn Brillance’. Surrounding the garden is a planting of medium to tall evergreens, including Serbian spruces and Colorado blue spruces; both offer excellent cover for nesting and perching.

In addition to providing shelter, a row of American hollies, *Ilex opaca*, are prolific producers of berries for winter feeding. Low bush-type junipers, *Juniperus chinensis* and *Juniperus* ‘Grey Owl’, provide shelter for ground-feeding birds.

Food plants popular with birds include Washington hawthorn, *Crataegus viridis*, and winterberry, *Ilex verticillata*. Both of these medium-sized plants can retain their fruits for long periods of time, making them important food sources well into the early winter.



Some birds prefer to feed on the ground, scavenging about. These species find seed-bearing plants attractive, including many perennials and annuals. In the center of the bird garden is an informal bed planted with a variety of seed-producing, low-growing grasses, including *Pennisetum alopecuroides* ‘Cassian’ and ‘Little Bunny’, and a few short bunch grasses including *Koeleria glauca, K. argentea,* and *Sesleria caerulea.* The bunch grasses also provide hiding places and attract insects for ground-feeding thrashers, thrushes, and sparrows.

Opposite the central grassy area is a bed of nectar plants specially chosen to lure hummingbirds. Cardinal flower, the red-flowered native *Lobelia cardinalis*, is massed here, together with clumps of blue flowered *Salvia elegans* and the large, pink-flowered *Hibiscus syriacus* ‘Diana’.

Another showy species native to our area is the trumpet creeper, *Campsis radicans*. This woody vine is seen growing on fences and walls throughout Missouri and produces red or orange trumpet-shaped flowers between July and September. In the Bird Garden it is growing on the semi-circular arbor, together with trumpet honeysuckle, *Lonicera sempervirens*. The flowering vines create a showy overhead canopy that is attractive to hummingbirds.

No bird garden would be complete without feeders and bird baths. In addition, the Lang Bird Garden features two special bird houses for our resident purple martins, which return each year from their winter home in Mexico. Purple martins are especially welcome in home gardens, as they eat quantities of insects, including mosquitoes.

– Steven D. Cline, Ph.D.

TIM PARKER

Steve Cline, manager of the Kemper Center (in front, right) led tours of the Center for visiting Master Gardeners.

Master Gardeners Hold State Conference at the Garden

About a hundred volunteers from all over Missouri attended the second annual State Master Gardener Conference, “Growing Great,” held at the Missouri Botanical Garden September 27 and 28, 1996. Tours were offered at Shaw Arboretum, the Garden, and the Missouri Department of Conservation’s nature center at Powder Valley. Talks and seminars were presented by speakers from University Extension, Garden horticulture staff, Garden Guides, and other local experts.

St. Louis Master Gardeners

The St. Louis Master Gardener Program, established in 1983 as a joint program between Missouri Botanical Garden and University Extension, is the oldest Master Gardener program in the state. Volunteers must complete 45 hours of training and at least 50 hours of community service to be certified; advanced training requires another 45-hour course of study. As of April, 1996, 280 St. Louis Master Gardeners have been trained and 178 are still active. In 1995, Master Gardeners reported over 13,100 hours of service to the St. Louis community in such activities as:

- **Kemper Center for Home Gardening — Staff the Plant Doctor Desk, reception desk, offer “Work and Tell” demonstations, and help maintain outdoor gardens.**
- **Garden’s Horticultural Answer Service — 42 men and women answered 23,000 calls in 1995, sometimes responding to 200 calls in a three-hour period.**
- **Community outreach programs — Horticultural Speakers Bureau, Samuel D. Soule Center for Older Adults, Forest ReLeaf of Missouri, Department of Conservation programs, and more.**
- **Urban gardening programs — Assist at community gardens, neighborhood greening projects, and school programs with Gateway to Gardening and the Urban Gardening Partnership.**
- **Education Programs — Teach adult education classes at the Garden and assist at Mullanphy Botanical Garden Investigative Learning Center.**
- **Plant Records Department — Record data on Garden grounds.**

Calendar

November 7, 14, 21 Thursdays

"The Private Life of Plants"

Special showing for Garden members of the acclaimed television series by Sir David Attenborough. Two segments will be shown in Shoenberg Auditorium on each date, beginning at 7 p.m. Members and their guests are invited to attend one or both segments each week. Dr. Marshall Crosby, senior botanist at the Garden, will introduce each episode and be available to answer questions during intermission. The Garden Gate Shop will be open until 8 p.m. on each of these evenings, featuring the Attenborough video series and book. Seating is on a first-come, first-served basis. Free admission.

November 1 Friday

"Our Wildflowers and Trees"

9 a.m. to 5 p.m. daily through November 14, Monsanto Hall. Color photographs by Margaret W. Harmon. Free with Garden admission.

November 7 — 9
Thursday — Saturday

Holiday Preview Sale

9 a.m. to 8 p.m. Thursday; 9 a.m. to 7 p.m. Friday; 9 a.m. to 5 p.m. Saturday. Garden Gate Shop. 20% discounts for members; refreshments. See page 15 for details.

November 7 Thursday

"The Private Life of Plants"

7 p.m., "Branching Out;" 8 p.m., "Putting Down Roots." In Shoenberg Auditorium. See highlight.

November 9 Saturday

"Microcosmos"

2 p.m., St. Louis Art Museum Auditorium (use rear entrance). A surprise hit at the Cannes Film Festival, this is an insightful and visually stunning documentary of life in the insect world. Co-sponsored by the Garden and the St. Louis Art Museum. Tickets are $5.

November 14 Thursday

"The Private Life of Plants"

7 p.m., "The Birds & The Bees;" 8 p.m., "Plant Politics." In Shoenberg Auditorium. See highlight.

November 21 Thursday

"The Private Life of Plants"

7 p.m., "Living Together;" 8 p.m., "It's a Jungle Out There." In Shoenberg Auditorium. See highlight.

December 3 & 4
Tuesday & Wednesday

Carols in the Garden

5 to 9 p.m. Carolers and musicians strolling the grounds, visits with Santa, and more. See back cover for details.

December 5 — 7
Thursday — Saturday

Holiday Plant Sale

Thurs. 9 a.m. to 7:30 p.m.; Fri. 9 a.m. to 8 p.m.; Sat. 9 a.m. to 5 p.m., Garden Gate Shop. 20% discounts for members; refreshments. See page 15 for details.

December 5 — January 1

Holiday Wreaths

9 a.m. to 5 p.m. daily, Monsanto Hall. A magnificent display of holiday wreath decorations created by some of the finest floral designers in St. Louis. Free with Garden admission.

A Victorian Holiday at Tower Grove House

December 3 — 31

Special Holiday Tours

Tower Grove House will be closed for decorating on Monday, December 2. It will reopen on Tuesday, December 3 for tours, 9:45 a.m. to 4 p.m., every day except Christmas. Henry Shaw's historic mansion is decked out in authentic Victorian holiday splendor. Admission to Tower Grove House is $2 adults, $.50 children ages 6 to 12, and free to Garden members.

December 3 & 4 Tuesday & Wednesday

Candlelight Tours

4:30 to 8:30 p.m. Admission is by advance ticket purchase only and includes "Carols in the Garden." See back cover for details.

December 10, 11, 16, 17

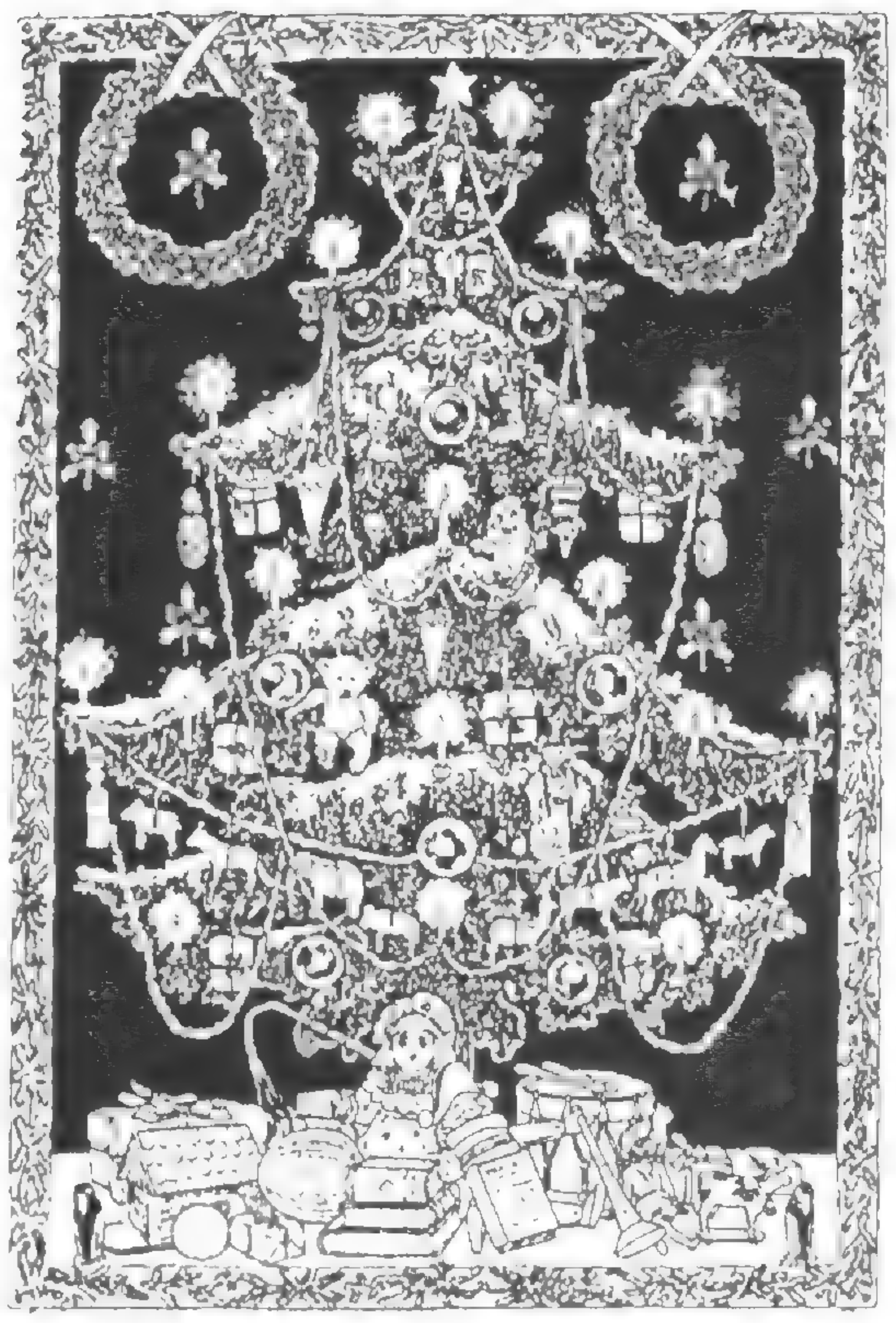
Holiday Luncheons

Tower Grove House Auxiliary will serve special holiday luncheons in the Tower Grove House Tea Room; serving begins at noon. Advance reservations are required; please call (314) 577-5150 beginning 9 a.m. Friday, November 15. Cost is $15 per person and payment must by received by December 3, 1996.

December 6 Friday

Members' Preview: Holiday Flower Show

5 to 8 p.m., Ridgway Center. Entertainment, cash bar. Dinner buffet is available in the Gardenview Restaurant for $10.95 per person; no reservations.



December 7— January 1

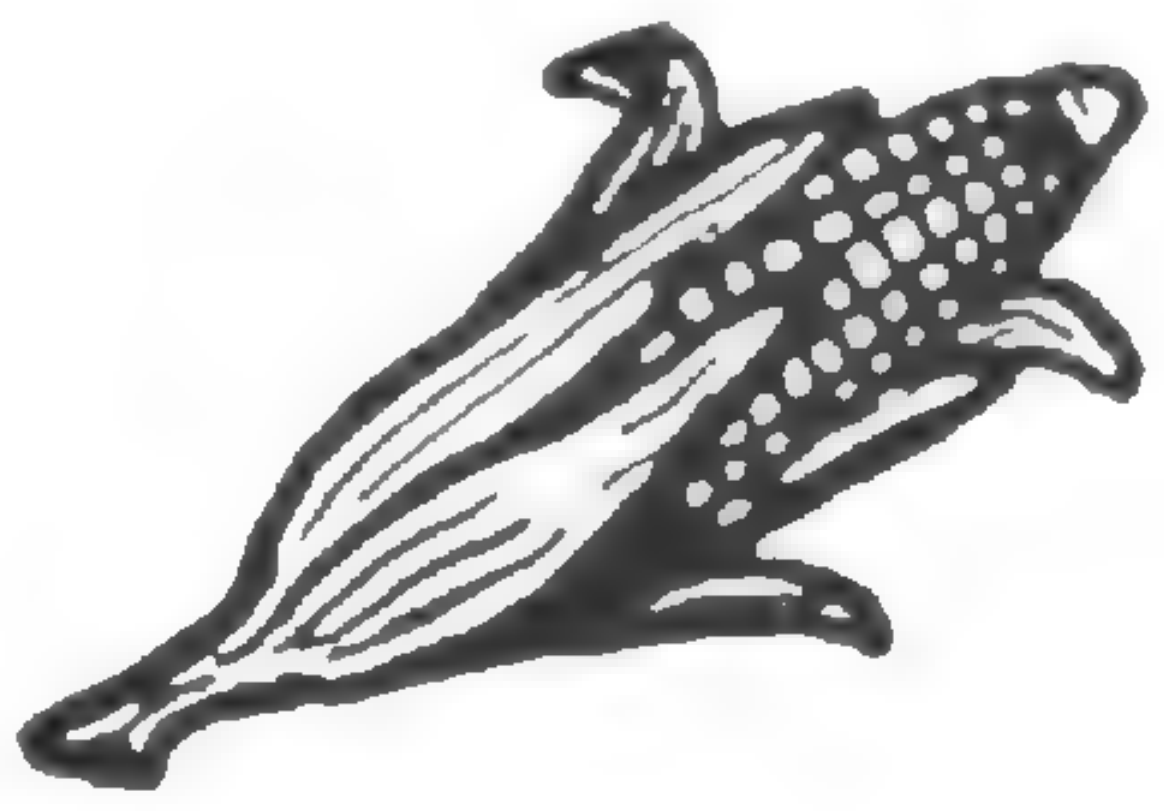
Holiday Flower Show: "A Victorian Holiday Garden"

9 a.m. to 5 p.m., Orthwein Floral Display Hall. From the mistletoe ball hanging overhead to the twinkling white lights below, this Victorian extravaganza is a delight for the senses. Brilliant poinsettias, amaryllis, acalypha hispidas, kalanchoes, and nicotianas surround a wrought iron fence and a richly ornamented central urn planted with flowers. Splashing fountains and seasonal music complete the enchanting scene. Admission to the flower show is $2 adults; $1 seniors age 65 and over; free to children 12 and under; and free to Garden members.

December 8 Sunday

Chanukah: Festival of Lights

11 a.m. to 5 p.m., Ridgway Center. Presented in conjunction with the Jewish Community Centers Association. Craft workshops, sing-a-longs, a puppet show, storytelling, cooking demonstrations, musical performances, a special menorah lighting ceremony and exhibit. Visitors are encouraged to bring canned goods for the Jewish Food Pantry. A special concert sponsored by the St. Louis Circle of Jewish Music will be featured at 3:30 p.m. Concert seating is on a first-come, first-served basis. Concert tickets are $5 per person, available one-half hour before the performance. The rest of the event is free with Garden admission.



December 28 Saturday

Kwanzaa: Festival of the First Fruits

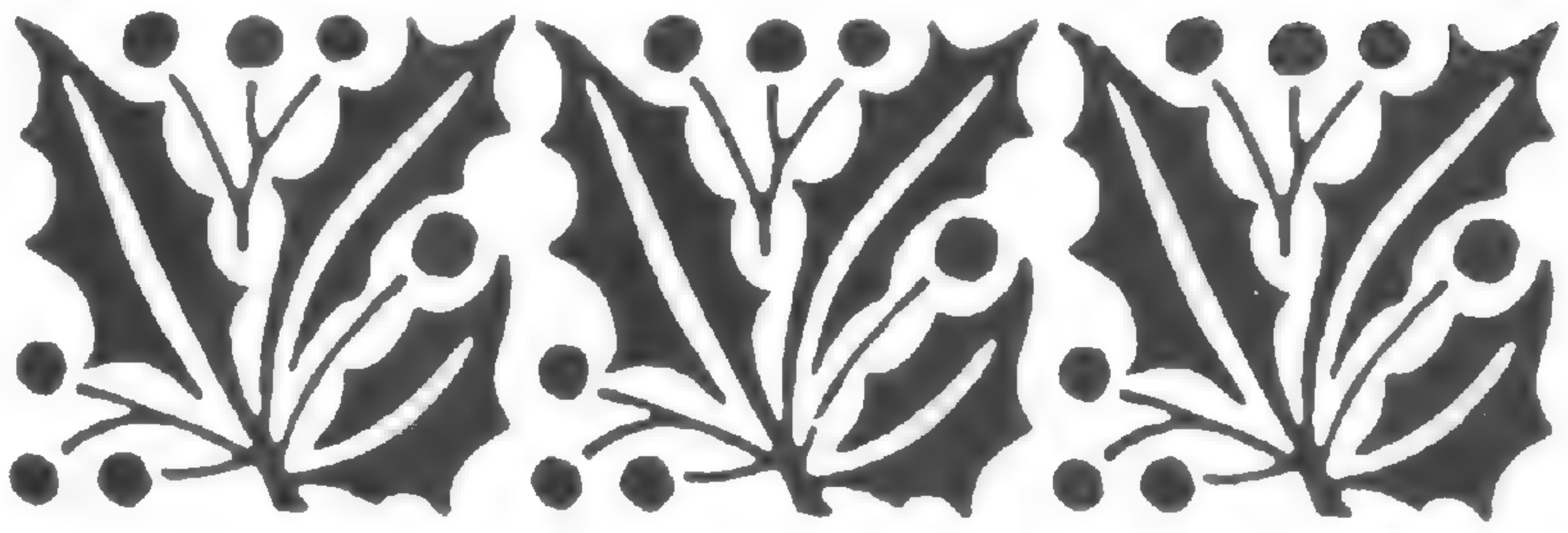
Celebrate the richness of African American culture with storytelling by Bobby Norfolk in Shoenberg Auditorium at 1 p.m., a tropical foods display, cooking demonstrations of authentic African dishes by Regina Davis, and activities for children that include making a terrarium and playing Mancala, the East African game. West Side Missionary Baptist Church provides a beautiful Kwanzaa feast table setting. Free with Garden admission.

January 4 & 5, 1997

Pre-Inventory Sale

9 a.m. to 5 p.m., Garden Gate Shop. See page 15 for details.

Members' Days



November 5 Tuesday

"A Feast for the Eyes"

11 a.m., Shoenberg Auditorium. Two of St. Louis's most talented party specialists, Nardi Hobler of Party Arts and Bee Sieburg of Wildflowers, share their ideas and expertise for creating beautiful tables for holiday entertaining. Seating is on a first-come, first-served basis. Free, for members only.

December 7 Saturday

Bel Canto Chorus

1 p.m., Shoenberg Auditorium. The Bel Canto Chorus of St. Louis, now in its 20th season, presents a choral concert of glorious Christmas music including works by J. S. Bach, Praetorius, Mendelssohn, Holst, Rutter, and more. Seating is on a first-come, first-served basis. Free, for members only.

Special Winter Schedules

- Trams will operate on a reduced schedule from November 1 through the end of February. Trams will leave the Ridgway Center at 10 a.m., 10:30 a.m., 2 p.m., and 2:30 p.m.
- Free Walking Tours will continue to be offered daily by the Garden Guides this winter. Meet at the Ticket Counter at 1 p.m.
- The Garden is closed on Christmas Day.
- The Garden Gate Shop, Tower Grove House, and the Kemper Center for Home Gardening are closed on Thanksgiving Day, Christmas Day, and New Year's Day.
- Tower Grove House is closed December 2 and during the month of January.

Members

Holiday Wreaths

December 5, 1996 — January 1, 1997

Spectacular seasonal decorations by some of the finest floral designers in St. Louis are on display 9 a.m. to 5 p.m. daily in Monsanto Hall:

BOTANICALS ON THE PARK • LEE RUSSO DESIGNS
LADUE FLORIST • THE BUG STORE • STUDIO P
SCHNUCKS FLORIST • PETALS BY IRENE • DIERBERGS FLORIST
SECRET GARDEN • SILKWORMS GARDEN • KENARY PARK
SURPRISE FLORIST • CM DESIGNS

Gift Memberships: Save 20%

During the holiday sales in the Garden Gate Shop, you may purchase a regular $50 Garden membership for just $40; or purchase a $40 senior membership for just $32. You may enjoy your special 20 percent members' discount right away at the Garden Gate Shop sale, or give a gift that will delight your friends all year long. Each person who receives a gift membership will be sent a set of six Missouri Botanical Garden notecards, with a holiday greeting from you.

Gift memberships at 20% off may be purchased at the Garden on:

November 7, 8, & 9, 1996
Thursday: 9 a.m. to 8 p.m.
Friday: 9 a.m. to 7 p.m.
Saturday: 9 a.m. to 5 p.m.

December 5, 6, & 7, 1996
Thursday: 9 a.m. to 7:30 p.m.
Friday: 9 a.m. to 8 p.m.
Saturday: 9 a.m. to 5 p.m

Thank You to Sponsors of "Best of Missouri" Market:

Commerce Bank
KMOX
Clifford Willard Gaylord Foundation
Premier Homes
Pepsi-Cola
Boatmen's National Bank of St. Louis
St. Louis County Farm Bureau
AgriMissouri

Thanks also go to Sachs Electric and Fabick Power Systems.

And Very Special Thanks to Our Volunteers —

Nora Stern and Ellen Dubinsky, co-chairs of the "Best of Misouri" Market, and their committee. Everyone's hard work and enthusiasm made the 1996 "Best of Missouri" Market a tremendous success for the fifth year in a row.

A Salute to the Heart Association — For the 1996 holiday season, the St. Louis Chapter of the American Heart Association features a lovely watercolor of the Rankei lantern in the Japanese garden on its holiday card. The painting, by St. Louis artist Charles H. Wallis, continues the Heart Association's traditional St. Louis Landmark series. To order, call (314) 367-3383.

KRISTEN PETERSON

Thanks for the Memories...

Presidents of the Members' Board (1964–96) gathered for luncheon in July. Standing, from left: Jane Tschudy, Ellen Dubinsky, Ann Bowen (current president), Mary Longrais. Seated, from left: Isabelle Morris, Ellen Jones, Helen Bixby, Jane Conrad, Mim Kittner, Brenda Banjak (membership coordinator), and Sue Rapp. Not pictured: Jane Macrae, Betty McCarthy, Sue Oertli, Nora Stern. Nearly all of the former presidents are still active volunteers at the Garden.

Special for Garden Members: *Banks' Florilegium*

Choose from hundreds of magnificent botanical prints in full color from the original copper plates of *Banks' Florilegium*. Prices start at $275, and Garden members will receive a ten percent discount between now and Christmas. Please call Dr. Mick Richardson of the Research Division, 577-5176 for more information.

Thank You, Members!

We extend our warmest appreciation to all Garden members for your outstanding response to sales in the Garden Gate Shop this year. All proceeds from sales in the Shop benefit the Garden, so your support means more than ever!

Start a Tradition

This year, the Shop will feature collectibles from Dickens' Village, Dickens' Ornaments, and *Mary Cratchit's Cookbook*.

- Old World Glass Christmas Ornaments, with a book of legends about each ornament and its meaning.
- Figurines by Crinkle Claus, Dean Griff, and Castagna.
- Educational toys and kid-size garden tools (great stocking stuffers!)
- Seasonal seed kits
- Bird feeders
- Fountains for the garden or table top
- Bulbs for indoor forcing
- Pruning shears and saws
- Sundials and wind chimes
- Christmas mailbox covers and flags

Wonderful New Holiday Gifts!

- Portmeirion's exclusive MBG Herb Pot
- The 1997 MBG Calendar
- Two MBG Holiday Cards
- The MBG "Clipper" Jacket
- "Christmas Cookies" and "French Vanilla" glycerin hand lotions by Camille Beckman
- Creations by local artists: hand carved woodworks, dried and silk wreaths and floral arrangements, notecards, sculptures, pictures framed and unframed.

Special Delivery!

For a nominal charge, the Shop will deliver your gifts.

GARDEN GATE

SHOP

Custom Baskets

Work with the Shop's two basket designers to create your own one-of-a-kind gift.

Call Christa Kling, 577-5137 for baskets of gourmet foods, fragrances and lotions, tabletop items, stationery, books, candles, toys, clothing, or silk flower arrangements.

Call Jill Munoz, 577-5152 for baskets of living plants, garden tools and accessories.

November 7 — 9
Thursday — Saturday

Holiday Preview Sale

Thursday, 9 a.m. to 8 p.m.; Friday, 9 a.m. to 7 p.m.; Saturday, 9 a.m. to 5 p.m. Members receive a 20 percent discount on all merchandise, all three days. Refreshments will be served.

November 18 — 24

National Children's Book Week

Take an extra ten percent discount on all children's books. With the regular members' discount, that's 20 percent off!

November 28 Thursday

Thanksgiving Day

The Shop will be closed. We will reopen the day after Thanksgiving, so if you're exhausted with the holiday bustle at the mall, come to the Garden Gate Shop for relaxed shopping, unique gifts, and plenty of free parking.

December 3 & 4

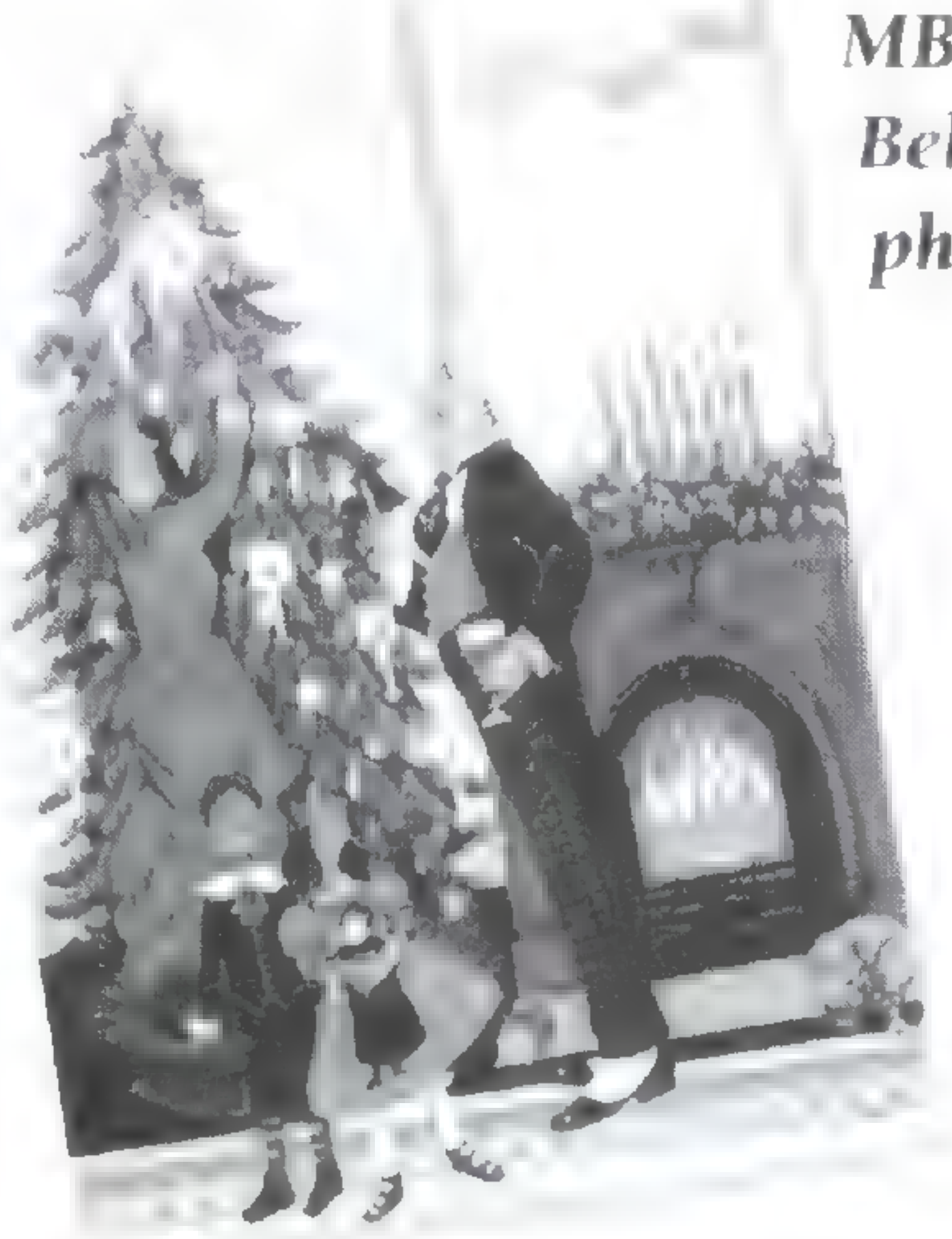
Carols in the Garden

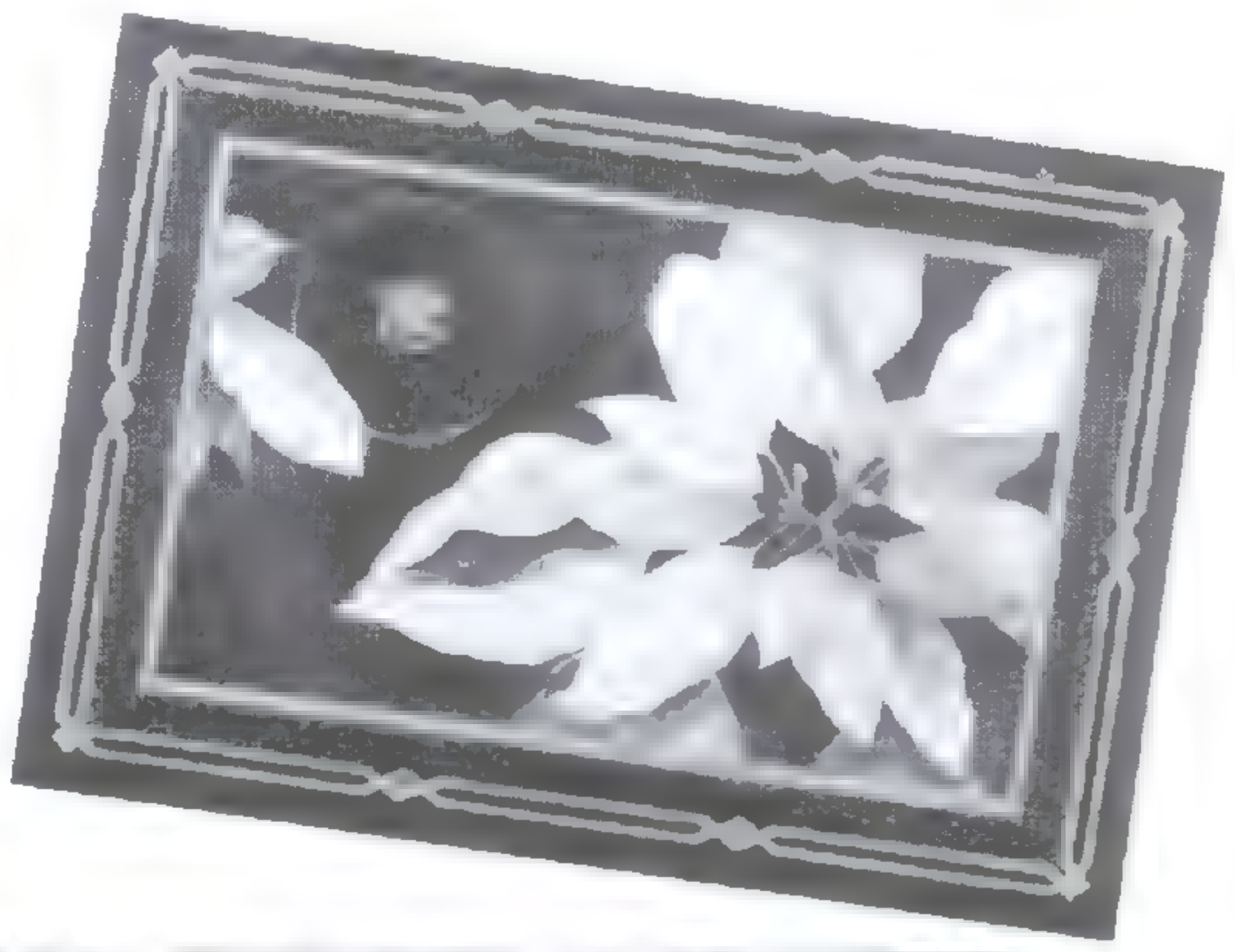
The Shop will be open until 9 p.m. both days.

December 5 — 7
Thursday — Saturday

Holiday Plant Sale

Thursday, 9 a.m. to 7:30 p.m.; Friday, 9 a.m. to 8 p.m.; Saturday, 9 a.m. to 5 p.m.





1997
Missouri Botanical Garden Calendar

Left: "Trimmimg the Tree" MBG holiday card by Ann Thompson. Right: "Poinsettia" MBG holiday card by Elizabeth Tipton. Below: 1997 MBG Calendar with photographs by Jack Jennings.

Featuring colorful poinsettias, Christmas cactus, and seasonal blooming plants, plus all the above gifts for last minute shoppers. Members take 20 percent off all merchandise, all three days. Refreshments will be served. The Shop will be open during the members' preview parties for the Holiday Flower Show.

December 7

Book Signing

11 a.m. to 3 p.m., meet Vashanti Rahaman, author of *O Christmas Tree*. Ms. Rahaman, a Missourian originally from Trinidad, has written a delightful tale about using poinsettias as Christmas trees in the West Indies. $14.95.

December 8

Chanukah

The Shop will feature traditional gifts for the Festival of Lights.

December 28

Kwanzaa

Traditional gifts for the African-American holiday celebration.

January 4 & 5, 1997

Pre-Inventory Sale

Come for extra discounts on closeout and seasonal merchandise, all reduced to sell before annual inventory. This will be the only advertisement for this sale!

Volunteer Profiles

Garden Guides

The Garden Guides will offer their training course in the fall of 1997. If you are interested in joining this talented group of active volunteers, please call Jeanne McGilligan at (314) 577-5187.

Sally Davidson

During her 20 years as an active Guide, Sally became our resident expert on the history and symbolism of botanical mazes. She developed a number of special tours, including an evening maze tour dealing with mazes around the world, an annual Japanese Garden tour for Concordia Seminary students of comparative religions, and a "Linnaeus Tour" for the Swedish society. Sally also designed the Guides' brochure "Blue Ribbon Tours for Adults" to interest new groups in touring the Garden. In addition, she wrote the application that resulted in the Garden's first grant from the St. Louis Community Foundation, which made it possible to introduce high school science teachers to scientists. Sally became a Guide in 1973 and retired in 1993. She served as chair of the Guides 1977-79, and she still serves as a gracious and valuable resource of information about the Garden.

Nan Day

As a graduate of Wellesley with a degree in botany, Nan already had a great interest in plants when she became a Garden Guide in 1971. She chaired the Guides 1973-75, together with Lucianna Gladney Ross. In 1975 Nan led the effort to establish the Volunteer Instructors Program, which provides invaluable assistance to the Garden's Education staff by teaching classes for children. She continues to serve as a volunteer instructor as well as a Guide.

Nan initiated the program of summer tours for visitors and was instrumental in moving the Guides program from public relations to the Education Division, where it operates today. Nan is very knowledgeable about many areas at the Garden and has developed several specialized tours.

Sara Johnson

Sara is one of the Weekend Guides, many of whom have full time jobs and still find time to lead tours at the Garden on weekends.

Sara became a Weekend Guide in 1988, but she fell in love with the Garden when she moved to St. Louis in 1983. She earned a master's degree at Washington University 1988-89 and currently works at Southwestern Bell as a software specialist. Perhaps Sara's special affinity for the Garden can be explained because she and the Climatron share the same birthday, October 1, 1960.

In addition to spending her weekends leading tours, Sara writes them as well, specializing in nature awareness tours. She also started an enrichment program for the Weekend Guides that helps them keep up to date on topics and information for their tours.

Adrienne Biesterfeldt

Adrienne became a Guide in 1982, but she began volunteering at the Garden in 1978 as a horticulture worker. Over the years, she has used her remarkable skills and knowledge as a volunteer in the English Woodland Garden, the Climatron, wildflower walks at the Arboretum, and the Plant Records Department. She is the Guides' recognized expert on the English Woodland Garden and has led several training classes.

Adrienne is a native of Texas. In addition to her service as a Garden Guide, she also finds time to volunteer for the Docent Council of Metropolitan St. Louis. Her love of wildflowers and the outdoors has led her to membership in the Botany Group of the Webster Groves Nature Study Society and the Native Plant Society. In June, Adrienne received the Garden's Award for Extra Service Hours at Volunteer Evening.

From left: Garden Guides Nan Day, Adrienne Biesterfeldt, Sara Johnson, and Sally Davidson.

Managing Deer at Shaw Arboretum

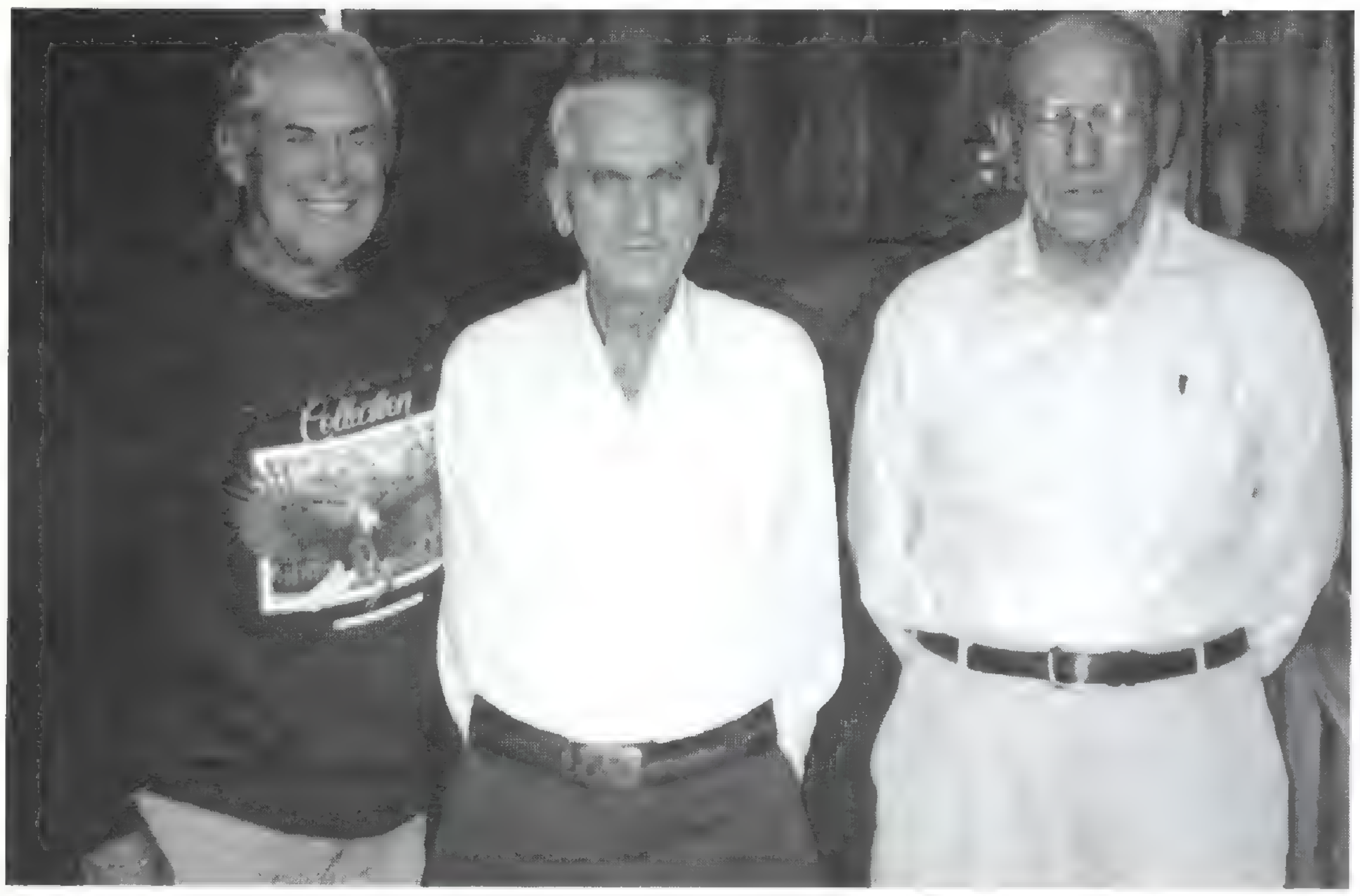
From severely reduced numbers in the early 1900s, the whitetailed deer, Odocoileus virginianus, has increased dramatically in Missouri over the past 50 years. The species's natural reproductive rate of one to three fawns per doe per year, the extinction of their natural predators, and protection from over-hunting are the reasons for the increase. The dark side of this success story is that deer populations have reached ecologically damaging levels in many natural areas throughout Missouri, including Shaw Arboretum.

The Arboretum manages its deer population in cooperation with the Missouri Department of Conservation. An annual census is taken by aerial surveys. The census and assessment of food plant populations are used to determine the success of the deer management program.

Research indicates the ecologically appropriate number of deer for an area the size of Shaw Arobretum is about 50 individuals. Currently, the number of deer at the Arboretum is twice this figure, but the hunts of the last few years have reduced the population from the still higher levels of the past. As a result, the "browse line" in our woodland and on the Trail House ivy have become less conspicuous and Aster species (a deer favorite) are noticeably more abundant in the autumn woods.

Nevertheless, browsing by deer is still having a severe impact on certain woodland wildflowers in spring, especially Trillium. Almost every Trillium plant at the Arboretum, except those on exceptionally steep slopes, is grazed before flowering by deer — year after year.

This season's hunt will take place December 7-8, 1996. For the safety of our visitors, the Arboretum will be closed that weekend. *— James C. Trager, Ph.D.*
Shaw Arboretum Naturalist



From left: Russ, Ray, and Adam in the maintenance shed at Shaw Arboretum.

Three Arboretum Volunteers

THERE are three dependable constants in the seasonal landscape at Shaw Arboretum: volunteers Ray Garlick, Adam Donges, and Russ Goddard. John Behrer, director of the Arboretum, said, "It would not be an exaggeration to say that the Arboretum is a special place in large part because of the dedication, knowledge, and thousands of hours donated by Ray, Adam, and Russ. They are important members of the Arboretum family."

Ray Garlick

Ray and his wife Amanda live in the stone house right behind the Visitor Center at Shaw Arboretum. He faithfully opens the gate every day at 7 a.m. and closes it one-half hour past sunset, a service the staff certainly appreciates. Ray has been at the Arboretum for 27 years; he retired at age 70 and has been a volunteer for the past 12 years. He still spends at least four hours a day running the brush hog, mowing the meadows, and grading the Arboretum's gravel roads.

Before he joined the staff, Ray worked for eight years at the property that became the Adlyne Freund Educational Center in 1978. For several years he was the only full time maintenance employee at the Arboretum. He supervised volunteers and the "kids" hired for the summer. One of the kids was John Behrer.

Ray grew up on a farm near Mooresville, Missouri, one of eight children. He collects marbles, antique tools, and toy tractors. Maintenance supervisor Glenn Beffa said, "Even if it's raining or snowing, Ray comes into the shop every morning to start the fire in the wood furnace and check up on the boys.'"

Adam Donges

After service in both the Navy and Air Force and working for the St. Louis Fire Department for 30 years, Adam retired in 1979 and moved to Pacific, Missouri. In 1980 a neighbor asked him to help renovate an old log cabin at the Arboretum, to be used for overnight education programs. Adam has been volunteering at the Arboretum ever since, where his skills as a woodworker and craftsman have been invaluable. His late wife, Eleanor, enjoyed the Arboretum as much as Adam does and was a friend to many of the staff.

Adam helped to prepare the site for the Whitmire Wildflower Garden and constructed the boardwalk and two gazebos there. He also provided major assistance on the restoration of the Bascom Manor House. Adam's hobbies include basket making, chair seat caning, and taxidermy. The great horned owl on display in the Arboretum Visitor Center is an example of his work.

Adam said, "Volunteering at the Arboretum has been a savior to me. After I retired, I wouldn't have had anything to do. This gave me the opportunity to do something really worthwhile with my time." David Hicks, construction manager at the Arboretum, added, "Adam has been a savior to *me*. In addition to the skills and time that he has given so willingly, he is a good friend."

Russ Goddard

If you have hiked the Arboretum trails, you have probably seen Russ, who maintains the Arboretum's 14-mile trail system. As a boy on a farm in southeast Missouri, Russ grew up with a knowledge of birds, wildflowers, and snakes, and an abiding love of nature. Russ discovered the Arboretum in 1931, at the age of eighteen, when he and the Eureka Y.M.C.A. nature club went there to hike.

As an adult, Russ taught swimming and led canoeing and rafting trips for the Y.M.C.A., including a ten-day float in 1969 through the Grand Canyon to celebrate the centennial of the exploration of the Colorado River. After seeing the clean up of the Current River by the Ozark Wilderness Waterway Club, he helped start Operation Clean Stream to do the same for the Meramec and Bourbeuse rivers.

Since his retirement as office manager of the Import Division of International Shoe Company, Russ has been volunteering and living at the Arboretum. He walks the trails on a weekly basis, clearing away brush and downed trees. He also helps with glade restoration and answers visitors' questions. He collects Native American artifacts and enjoys the ancient crafts of leather work and flint knapping.

A visitor who met Russ last year wrote to him, "While we talked I couldn't help but think that I was in the presence of Ralph Waldo Emerson, Henry David Thoreau, or the woodcutter in Walden Pond. It is not very often that you have the pleasure of meeting a man in his element."

— Barbara Troutman,
volunteer coordinator, Shaw Arboretum

Calling All Polar Bears and Lumberjacks!

Hardy volunteers are needed to help with the ongoing ecological restoration of dolomite glades at Shaw Arboretum. Experience has shown that removal of invasive cedars and controlled burning allow overgrown glades to regain their beauty within just a few years as grassy habitats for wildlife and wildflowers.

This year work parties will be held on November 23 and December 14, 9 a.m. to 4 p.m. The work is heavy and dirty and goes on in any weather, but volunteers will be personally involved in healing a damaged habitat that is an important part of Missouri's heritage. Volunteers should bring a sack lunch and dress in layers appropriate for hard outdoor work. Hot beverages and heated shelter will be provided. Please call Shaw Arboretum at (314) 451-3512 no later than noon on the Friday preceding the work date.

Systematics Symposium

New Tools for Investigating Biodiversity

More than 450 scientists from the United States and abroad attended the 43rd Annual Systematics Symposium held at the Garden on October 4 and 5, 1996. The annual meeting provides an important forum for discussing trends in systematic biology. Systematics is the discipline that documents the diversity of organisms and groups them in ways that reflect their evolutionary relationships.

This year the symposium attracted a wide range of scientists interested in the latest developments in high technology equipment and statistical methodology for field research, as applied to biodiversity studies. The ready availability of cheaper, faster computers with large storage capabilities has opened up new possibilities for studying the vast diversity of living organisms. Today biologists working in the most remote areas of the world are using laptop computers, satellite images, Global Positioning Systems (GPS), and Geographic Information Systems (GIS) to record their observations and process data. This technology is literally changing the way scientists inventory and monitor biodiversity.

Led by moderators Bette A. Loiselle of the University of Missouri-St. Louis and George E. Schatz of the Garden, seven participants presented papers on the new technology. The speakers described a variety of studies to demonstrate practical uses of the equipment and the results produced by new methods. Presentations illustrated using GIS and systematic sampling to document "landscape mosaics" within tropical rain forests, employing satellite imagery and large scale field studies to assess biodiversity patterns along the Amazon, and descriptions of new mapping techniques.

Since 1954, the Systematics Symposium at the Garden has received support from the National Science Foundation for 41 of its 43 years, including 1996.

Above: Presenters at the Symposium (back row, from left): Bette Loiselle, Mike Austin, David Mladenoff, J. Michael Scott. Front row, from left: Andrew Weiss, Deborah Clark, George E. Schatz, Hanna Tuomisto. Not pictured: Charles Convis.

PHOTOS BY CLIFF WILLIS

PEET Grant Supports Graduate Training

A group of bryologists — specialists in mosses and liverworts — are in the second year of a five-year program for training graduate students in bryological systematics. Supported by a $750,000 PEET grant from the National Science Foundation, the project will also produce a monograph on the Pilotrichelloideae of the Meteoriaceae, a large and unusual group of mosses known primarily from tropical forest regions. The project is directed by Garden bryologists, Dr. Robert Magill and Dr. Bruce Allen, assisted by Dr. Steve Churchill, who was recently hired to participate in the project. Currently two doctoral candidates at University of Missouri-St. Louis are included in the project, Zacharia Magombo from Malawi and Michelle Price from Great Britain. Pictured above in the bryology laboratory are (from left): Zacharia Magombo, Steve Churchill, Bob Magill, Michelle Price, and Bruce Allen.

From left: Aida Alvarez, Dorothy Bay, Andoni Westerhaus.

Graduate Students Complete Degrees

Four students working with Garden scientists recently completed their graduate degrees at local universities.

Andoni Westerhaus, a native of St. Louis, earned his Master of Science degree from University of Missouri-St. Louis, where he is now working toward a Ph.D. Andoni did his M.S. work on a taxonomic revision of the genus Burasaia in the moonseed family and did field work in Madagascar, where the species is endemic.

Aida Alvarez completed her M.S. at UM-St. Louis, studying the genus Saracha in the nightshade family. Aida is from Ecuador, and she will return there to continue her studies.

Dorothy Bay, who earned her Ph.D. at Saint Louis University, studied members of the aroid family that occur in Bajo Colima, a region of high rainfall in Colombia. Dorothy is now teaching at Missouri Southern State College in Joplin.

Brad Boyle (not pictured) is a Canadian who earned his Ph.D. at Washington University, studying changes in tropical forest vegetation at different altitudes in Mexico, Costa Rica, and Ecuador. He is preparing to teach the prestigious Tropical Biology course for the Organization of Tropical Studies.

A Legacy of Knowledge

When Garden curator Dr. Alwyn H. Gentry was killed in a plane crash in 1993, the world lost one of its leading botanists. Gentry was the recognized expert on the Bignoniaceae, or trumpet creeper family, and a leading authority on the ecology of tropical forests. Fortunately, in addition to his many published works, Gentry left behind a huge volume of unfinished notes, manuscripts, and data. Under the direction of Garden curator Dr. William G. D'Arcy, the wealth of Gentry's final work is now being put into a form that will make it usable for scientists everywhere.

Gentry's work made the Garden the world center for study of the Bignoniaceae.

Gentry left information in his personal database on some 55,000 specimens from 122 herbaria around the world, including about 25,000 from the Garden. With support from the John D. and Catherine T. MacArthur Foundation, Dr. D'Arcy put the information into TROPICOS, the Garden's botanical database system, which is available worldwide through the Garden's Web site on the Internet.

In addition, a three-year grant from the National Science Foundation has made it possible to hire a post-doctoral researcher, Dr. Warren Hauk, to complete Gentry's taxonomic studies. Dr. Hauk, who began work at the Garden in June, earned his Ph.D. in molecular systematics at the University of North Carolina at Chapel Hill. He views his work on the Gentry project as a valuable opportunity to expand his botanical training with work in traditional taxonomic methods.

The Bignoniaceae forms an important part of tropical forests worldwide. The family has about 900 species, of which more than three-quarters occur in the Neotropics, with the richest concentrations occuring in Brazil. Many species in the family have large, showy flowers, and about 500-600 are lianas, or vines. Before Gentry's work, the family was not extensively collected because so many of the species grew high in the forest canopy.

At the time of his death, Dr. Gentry had completed or revised descriptions of about half the family, including 162 new species. Dr. Hauk's work will complete the treatments of groups of showy ornamental vines from Central and South America. Many of the species have potentially important medicinal value and serve as strong indicators of the ecological status of forested areas.

Dr. D'Arcy said, "The importance of Al's work cannot be overstated. His insights into comparative biodiversity and the ecological importance of vines led to huge new areas of taxonomic inquiry, and his collections have made the Missouri Botanical Garden the world's center for study of the Bignoniaceae. We are very pleased that the National Science Foundation is making it possible for us to share his legacy of knowledge with the world."

The Garden continues to seek additional funding to support field work for Dr. Hauk, to allow him to visit and observe plants growing in the regions where Gentry worked.

CLIFF WILLIS

Dr. Warren Hauk at work in the herbarium.

Garden Continues Search for New Drugs with the National Cancer Institute

In 1986, Garden botanists began collecting plant samples from tropical Africa and Madagascar for evaluation in the National Cancer Institute's Developmental Therapeutics Program (NCI). The Garden has completed work on its second five-year contract with NCI and a third contract was awarded on September 1, 1996 that will extend the program for three more years. Two additional option years could continue the program until August of 2001.

Collecting in five African countries and Madagascar has already yielded more than 13,000 samples that have been studied for cancer and AIDS medicines. Each sample sent to the NCI's facility in Frederick, Maryland is screened for activity against 60 cancer cell lines and the human AIDS virus.

Plants have always been an important source of medicines. Currently about one quarter of prescription pharmaceuticals contain at least one plant-derived ingredient. While the Garden's collecting efforts have not yet produced a new medicine, they have discovered a variety of new promising compounds. Michellamine B, an alkaloid produced by a vine from Cameroon, has shown significant anti-HIV activity and is currently in preclinical development at the NCI.

The compound was discovered from *Ancistrocladus korupensis*, a new species described by Duncan Thomas and Roy Gereau (see the *Bulletin*, January/February 1994). Five other therapeutically promising compounds have been discovered, including the antimalarial korupensamines and Gentrymine B, named in honor of the late Garden curator Dr. Alwyn H. Gentry (see the *Bulletin*, November/December 1995).

The current collecting program is coordinated by Dr. James Miller, head of the Applied Research Department. Collecting is planned to take place in Madagascar and Ghana. Heidi Schmidt coordinates the Garden's collecting efforts in Ghana in conjunction with botanists from the University of Ghana and Bioresources International. Coca Rakotomalaza organizes the Garden's efforts in Madagascar with collaborators from the Parc Botanique et Zoologique de Tsimbazaza and the Centre National d'Application des Recherches Pharmaceutiques.

During the last ten years, Garden botanists have worked closely with staff of the NCI to develop a program structure that benefits all participants in an equitable manner. These efforts have resulted in agreements signed with each country where collecting is taking place, ensuring that a portion of the profits from any drug discovered will return to the country from which the collection was made. This recognizes the importance of both the technology needed to develop new medicines and the economic value of the tropical forests from which they are being developed.

The Garden's work with the NCI has supported collecting expeditions in many poorly known parts of tropical Africa and Madagascar. Not only have therapeutically promising compounds been discovered, but the effort has helped increase our botanical knowledge of these interesting, yet highly threatened, forests and a number of species new to science have been discovered as part of the efforts.

— James S. Miller, Ph.D.
MBG Department of Applied Research

MARGARET HARMON EXHIBIT OPENS AT THE GARDEN

Margaret W. Harmon was honored with a reception on September 12, 1996 at the opening of her exhibit of color photographs, "Our Wildflowers and Trees." The exhibit runs through November 14 in Monsanto Hall and is based on Mrs. Harmon's book, which chronicles seasonal changes in the woods around her home in Inver Grove Heights, Minnesota. Mrs. Harmon, pictured above with Peter Raven, signed copies of her book at the reception. *Our Wildflowers and Trees* is available in the Garden Gate Shop.

1997 Garden Travel Opportunities

Natural History Adventures

- **Thailand: A Southeast Asian Paradise,** February 8 - 23, 1997 $3,093 from Los Angeles
- **Venezuela: Land of the Lost World,** March 2 - March 11, 1997 $3,198 from Miami
- **Coastal Spain and the Canary Islands,** April 11 - 28, 1997 $4,815 from Madrid
- **The Nature Place: Colorado Rockies,** July 5 - 11, 1997 $825/Adult, $550/Children
- **Galapagos: Darwin's Enchanted Isles,** August 6 - 16, 1997 $3,398 from Miami
- **Kenya: A Grand Safari,** October 19 - October 31, 1997 $4,385 from St. Louis

Missouri Botanical Garden

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A $1 million challenge grant from The Kresge Foundation, plus campaign highlights of 1997.

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CAROLS
IN THE GARDEN
A Winter Night's Festival

Tuesday & Wednesday • December 3 & 4, 1996 • 5 to 9 p.m.

The scent of roasted chestnuts fills the air as carolers and musicians stroll the grounds. At Spink Pavilion children will meet Santa, enjoy treats, have their faces painted, and make a tree ornament or gift to take home. Visit the spectacular holiday tree at the Kemper Center and the wreath exhibit in Monsanto Hall.

ADMISSION

Admission to "Carols in the Garden" includes Garden admission, performances by carolers, a visit with Santa, children's crafts and refreshments. No reservations are required. $5 for adults; $3 for Garden members and seniors age 65 and over; $2.50 children ages 3 to 12. Tickets may be purchased at the Ticket Counter beginning November 10, or at the door.

BUFFET SUPPER

Enjoy a buffet supper with Santa's helpers in the Gardenview Restaurant, 5 to 7 p.m.: $7.95 for adults, $4.25 for children 12 and under.

INFORMATION

Call GardenLine at (314) 577-9400 for a schedule of performance times, including St. Louis's own "Pieces of Eight." Garden Gate Shop will be open.

Tower Grove House Candlelight Tours

Tuesday & Wednesday • December 3 & 4, 1996
4:30 to 8:30 p.m.

ADMISSION

Admission is by advance ticket purchase only and includes the house tour, refreshments in the Tower Grove House Tea Room, and admission to "Carols in the Garden." Tickets are $14 for adults; $12 for Garden members and seniors age 65 and over; $11.50 for children ages 3 to 12 years. Tickets will be available beginning November 10 at the Ticket Counter, or call (314) 577-5125. Tickets to Candlelight Tours are limited.

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